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ENCYCLOPAEDIC
DICTIONARY AND DIRECTORY
OF
EDUCATION

[WITH SPECIAL REFERENCE TO INDIA]

VOLUME I

REFERENCE BOOK

50261

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Preface

The field of education has grown enormously. Educationists throughout the world continue to enrich the professional literature with their important contributions. It has become difficult for any person single-handed to find his way through the wilderness of this very mass of literature or to reach an indefinitely large number of authorities. We have endeavoured to get together within the cover of a single book as much information as it would hold about the entire field of education, with a special coverage of terms and concepts, philosophies and histories, reports and references needed to understand and interpret the world of education—its past and present.

The unique contribution of India in the field of education has not yet found its due place in the existing encyclopaedias of education. This work corrects the omission by providing adequate reference to India where education has a continuous history of over 3500 years.

The publication has been divided into two volumes. Volume I contains *Encyclopaedic Dictionary* (Part I), *Men of Learning in the Field of Education* (Part II) and *Educational Systems of the World* (Part III). Volume II has been presented in the form of a *Directory of Education*.

The term '*Encyclopaedic Dictionary*' is of recent currency. It is a work of reference which covers a range of subjects that is truly encyclopaedic with the brevity and conciseness of a dictionary. It not only explains the meaning of a term but also says something more about it.

The range of educational terms is so great that completeness even in a moderate sense becomes impossible to achieve. The compilation, therefore, necessarily becomes a matter of selection. The primary aim has been to include all terms and words which are frequently used in educational literature, discussions and teaching, or have a special professional connotation different from that of everyday speech. Psychological terms and vocabulary from other disciplines having educational significance also find a place here. Apart from the professional and technical terms, it includes materials on institutions, organizations, methods, movements, plans, projects, practices, programmes, theories, principles, philosophies, histories, experiments, research reports, places and centres of learning, committees and commissions, resolutions and Acts. *Glossary of National Terms* used with reference to educational systems of 29 countries has been appended to the *Encyclopaedic Dictionary*.

Part II has been titled *Men of Learning in the Field of Education*. It includes *World Educators and Educationists*, *Great Teachers of Ancient India* and *Who's Who in Indian Education*. Indian educationists and philosophers who have greatly contributed to educational thought and practices have been included among the world educators and educationists. The great teachers of ancient India have been given a place of honour. It is time that their contribution should be understood by the world. It would be of interest to learn that some of them flourished at a time when the great civilizations of Greece and Rome were yet unborn.

Who's Who in Indian Education forms the last portion of Part II. Here the selection of the educators presents the most formidable problem. We have tried to include educators, educationists, educational administrators, experts and writers on education—all who have attained a certain measure of celebrity in the field of education. We are aware that we have missed a few great names partly for our inability to locate the source of information, and partly for the non-availability of information requested for. We apologize for our unintentional omissions. It is also possible that some of the readers may not agree to our selection. Nevertheless, a choice had to be made.

Part III pertains to the *Educational Systems of the World*. Each reference is uniformly organised. It begins with the constitutional basis of education and is followed by the various levels of education, their structure and organization, administration and supervision.

The *Directory of Education* forms Volume II of this work, and contains the following :—

1. Books on Education.
2. Periodicals on Education.
3. Dissertations on Education.
4. Tests.
5. Educational and Allied Institutions in India.
6. Educational Research Institutions in Asia.
7. Major International Educational Organizations.
8. Professional Organizations.
9. Educational Statistics.

We are indebted to a large number of authors and publishers whose works we have consulted in writing this book.

Our thanks are due to Unesco for kindly permitting us to use the glossaries contained in the *World Survey of Education*, Vols. II, III and IV.

To the innumerable sources of information, both Indian and foreign, we acknowledge our special gratitude.

We are particularly thankful to Shri R.C. Gupta, Counsellor-in-Charge, Bureau of Educational and Vocational Guidance, Directorate of Education, for assisting us in the preparation of this book.

We will consider our efforts amply rewarded if this work enthuses scholars and educationists to design a more comprehensive work of reference which would truly represent the first Encyclopaedia of Education with special reference to India.

A. BISWAS

J. C. AGGARWAL

CONTENTS

PART I

Encyclopaedic Dictionary of Education	...	1—206
<i>Glossary of National Terms</i>	...	188—206

PART II

Men of Learning in the Field of Education	...	1—84
<i>World Educators and Educationists</i>	...	1—43
<i>Great Teachers of Ancient India</i>	...	44—49
<i>Who's Who in Indian Education</i>	...	50—77
<i>Index</i>	...	78—84

PART III

Educational Systems of the World	...	1—92
<i>Index</i>	...	91—92

PART I

ENCYCLOPAEDIC DICTIONARY
OF
EDUCATION

A

abacus : a frame fitted with wires or rods for sliding coloured beads or balls. It is used for teaching number-work to the beginners. In the olden days it used to be a board covered with fine dust.

Abbot-Wood Report (Ind.) : a report submitted in 1937 by the two expert advisers—A. Abbot, Ex-chief Inspector of Technical Schools, Board of Education, England and S.H. Wood, Director of Intelligence, Board of Education, England—invited by the Government of India in 1936 on the recommendation of the Central Advisory Board of Education to advise ‘whether any vocational or practical training should be imparted in primary, secondary and higher secondary schools, and if so, what should be its nature and extent’. The report consisted of two parts : (i) Report on Vocational Education written by Mr. A. Abbot, and (ii) Report on General Education written by Mr. S.H. Wood. The report stressed that vocational education was as important as general education. “Neither of them can claim to be more useful and necessary. If general education brings about the development of the non-material culture of a country, vocational education does the same thing for material culture. Hence, both are necessary for the progress of a country.”

ABC method : a common method used to teach English to the beginners until the introduction of various phonetic systems. The letters of the alphabet are learnt in order from A to Z, with their name sounds. Letters are then combined to form syllables and words, and the spelling of each word is learnt. The method is still in use in some schools in India though it is gradually disappearing.

ABC of observation : see ‘observation, ABC of’.

abecedarium : an ABC book or a primer. Abecedarian means either a beginning pupil especially trying to learn the alphabets, or a teacher of primary reader.

Aberdare Report (Brit.) : a report of the Departmental Committee on Intermediate and Higher Education in Wales, published in 1881. The committee with Lord Aberdare as chairman recommended the setting up of two more university colleges (at Cardiff and Bangor).

aberration, mental : a deviation from the normal mode of thinking and behaving to a degree

sufficient to be considered a disorder.

abhyasa (Ind.) : assiduous practice and application as one of the essential requirements of meditation.

abient response : see ‘response, abient’.

ability : the power present in an organism to perform an act, physical or mental or to make adjustments successfully. Generally speaking, ability is the actual power in a person to perform any work. Academic ability would mean a general ability or any special ability required in school work ; artistic ability may refer to a special aptitude or talent for creative arts. A child with a language ability would be capable in using a language and with a mechanical ability he would demonstrate ability to deal with mechanical problems or to handle tools and machines. When a student is able to read fast and with comprehension, we say he has a reading ability.

ability, mechanical : see ‘mechanical ability’.

ability, social : ability to get along with other persons ; ability to influence or lead the group and to get adjusted with the group.

ability test : a test used to predict future achievement or achievement in another situation. We also speak of mechanical-ability test, musical-ability test, etc. An aptitude test is also a form of ability test.

abnormal child : a term used to refer to the child who is different from a normal child. It is, however, difficult to describe a child as an abnormal child, for a child is rarely abnormal in all his characteristics. It is always better and safer to describe him as a child who is abnormal in school achievement or in intelligence, rather than refer to him as an ‘abnormal child’. The word ‘abnormal’ often conveys an unwarranted and unpleasant connotation. The use of the word abnormal should simply imply that it is a deviation from the average. The judgement of whether the abnormal is good or bad may be made separately.

abnormal psychology : the branch of psychology that studies abnormal behaviour, abnormal mental processes and the persons exhibiting them. It is the study of mental behaviour that deviates from the standard set by normal behaviour.

abreaction : a process in a psycho-therapeutic situation in which the emotion attached to the

earlier life experiences leading to mental conflicts loses its power of producing distorted attitudes and reactions. In fact, the emotional tension is lessened through relieving the past situations that originally produced conflicts or repressions.

absence, excused: an absence from school on grounds considered reasonable or legitimate by the school.

absence, legal: an absence from school on grounds covered by regulations as established by law.

absence, per cent of: total number of days of absence divided by total number of days enrolled.

absence, unexcused: an absence from school on grounds not accepted as legitimate by the school. Truancy is an instance.

absenteeism: the practice of pupils of absenting themselves from school, especially frequently or without prior permission.

absolute judgment: a method of making sensory measurements in which the observer makes his judgment about the first pair of items in a series of items paired for comparisons. The judgment is made on the basis of the trend of the series. In fact, the judgment is comparative and not absolute and therefore the term is a misnomer. The term can be distinguished from 'comparative judgment' which compares one stimulus with another to find out if the one is more bright, more light, more pleasant, or the like.

absolute mark: see 'mark, absolute'.

absolute perceptual span: see 'perceptual span, absolute'.

absolute pitch: ability to recognize the pitch of any tone or to reproduce any tone vocally. This ability can be developed by training.

absolute threshold: the smallest amount of a stimulus that can be perceived. For instance, absolute brilliance threshold would be the lowest intensity of light that one can distinguish from complete darkness. The concept implies the minimum intensity that makes the stimulus effective to elicit any response.

abstract behaviour: manipulation of symbols as distinguished from 'concrete behaviour' which involves manipulation of things.

abstraction: a learning process in which an individual learns to select and respond only to certain properties or aspects of an object and to isolate or disregard other properties or aspects of the object. The process can be distinguished from 'analysis' in which the whole object is analysed into all its parts. Abstraction isolates some parts of the whole, while

Analysis takes care of the parts of the whole object. Sometimes the word is used derogatively when an idea has no relation with facts; it becomes a mere abstraction.

academic: pertaining to school subjects, or to the fields of liberal arts, or to the sphere of ideas and abstractions.

academic ability: see 'ability'.

academic achievement: knowledge acquired and skills developed in school subjects, generally indicated by marks obtained in tests.

academic costume: refers to the caps, gowns and hoods worn by students, faculty members and school officials. Academic costume was first used in 1284 at the Cambridge University, England.

academic council: an advisory body of a university which advises on academic matters and discharges the responsibility of maintaining academic standards. It generally consists of representatives of the teaching staff of the university and its affiliated colleges and outside experts. Its recommendations are subject to review by the executive council of the university.

academic freedom: the freedom to the teachers in universities and colleges to discuss freely their subjects in the class-room and to present their views on controversial issues, provided that they accord similar treatment to views other than their own, and provided further that they do not introduce controversial matter that lies outside the field of their specialisation. Academic freedom found its first acceptance in Germany. Göttingen (in Germany) established in 1732 was among the first universities to provide such academic freedom to its faculty. Robert M. Maelver, John Dewey and Arthur O. Lovejoy relate academic freedom to university teaching. It is now felt by many educators that we can no longer limit the sphere of academic freedom to higher education only; it should pervade every sphere of educational endeavour—the elementary, the secondary as well as the higher level of education. (Syn. 'academic liberty')

academician: the name of the first important educational journal which began publication in America in 1818. The word is also used for a person distinguished for bookish learning or scholarship.

academic liberty: see 'academic freedom'.

academic ranks (U.S.A.): ranks in which the highest rank is of professor, followed by associate professor, assistant professor, and instructor. In all major American universities these positions will require that the persons hold a Ph.D. degree, although for an instructor only

an M.A. degree may be required. In some universities there is also the position of lecturer, which is usually a special appointment—part-time or temporary.

Academi plan (U.S.A.): a plan of teacher education first introduced in New York in 1834 for advancing State grants to academies for running separate departments for training elementary teachers.

academy (or, academe): from 'Academia' a grove near Athens. The term was first used by Plato as the name of his school of philosophy which he founded in 380 B.C. near Academia to offer a philosophical solution of the problems of life. The second Academy was founded by Arcesilaus about 250 B.C. and the third by Carneades about 213 B.C. to teach a modified Platonic doctrine. Benjamin Franklin founded the first academy in the United States in Philadelphia in 1751. This later became the University of Pennsylvania. The academy in the United States was different from the Latin Grammar Schools in many respects. It served as an introduction to the democratic high school of today.

Academy and College of Philadelphia (U.S.A.): the first American academy (1751) that dominated American education for about a century, and paid attention to the teaching of English language, literature, oratory and scientific courses.

Academy, the British (Brit.): a society established in 1902 for the promotion of the study of the moral and political sciences including history, law, archaeology, philosophy and political economy. Sir Israel Gollancz was its first secretary.

Academy, the French (Fr.): a literary society founded in 1635 by Cardinal Richelieu, one of its chief functions being the compilation and revision of a dictionary of the French language. It produced the first edition in 1694.

academy, tuition: a secondary school mostly or entirely supported through tuition fees.

Academy of Arts, the Royal (Brit.): a society founded in 1768 under the patronage of George III for annually exhibiting the works of contemporary artists and for establishing a school of art. Its first president was Sir Joshua Reynolds.

Academy of Pedagogical Sciences (U.S.S.R.): an academy consisting of the most outstanding scientists of pedagogy founded in 1943 by a government decree, in co-operation with the Ministry of Education, R.S.F.S.R., with the purpose of co-operating in the development of

education on a nation wide basis, conducting research, and implementing its findings in practice, as well as publishing professional journals and magazines. The members are recommended by individual scientists or scientific institutions and are elected during the plenary session by secret ballots.

acatepsia: inability to understand instructions whether conveyed through language, gestures or symbols.

A.C.C.: see 'Auxiliary Cadet Corps'.

acceleration: the progress shown by completing school grades or classes at a rate of more than one full grade or class per year. In case a student has completed first five classes in four years, it would mean an acceleration of one year.

acceptance: in counselling, a positive attitude of the counsellor towards the counsellee. The counsellee is allowed full opportunity to express his negative feelings without any fear of being reproached by the counsellor who shows understanding to his client's feelings and individual worth.

accessory material: devices that are used to supplement the basic text book, such as charts, cards, work books, etc.

accessory space: part of a room or building used for storage or auxiliary activities.

accident drill: a plan well drilled for quickly discharging students from a school bus during an emergency.

accomplishment quotient: [usually abbreviated to A.Q.] the quotient obtained by dividing the achievement age of a child by his mental age, and multiplying by 100. A child whose achievement age is 11 years and mental age 10 years, will have an A.Q. of $\frac{11}{10} \times 100 = 110$. The accomplishment quotient is a ratio of a child's actual level of achievement to what he is capable of achieving. It is, however, not a very reliable quotient. (Syn. 'achievement quotient')

account approach: a way of teaching the principles of book-keeping and accounting through ledger accounts, the real source of transactions.

accounting, property: dealing with the accounts and records related to fixed assets.

accounting, teacher: the recording of information about individual teachers regarding education, experience, conduct, achievement, pay-scale, etc.

accredit (U.S.A.): to rate and recognize an educational institution as fulfilling the required standards by a competent agency.

accreditation (U.S.A.): the recognition accorded to an institution by means of inclusion in

a list of institutions issued by some association or agency or organization which sets up certain requirements or standards that must be complied with by an institution in order to secure approval. The accrediting of an institution enables the people to know the standing of various elementary, secondary, higher and professional schools. The evaluative criteria to judge the effectiveness of an institution involve an analysis of curriculum, library, guidance service, activities, instructions, outcomes, staff, plant and general administration. Accrediting is now recognized as the first step in the process of helping an institution to be more effective. The idea of accrediting of educational institutions is not popular in countries where education is centrally controlled.

accrediting agency (U.S.A.): an organization which judges the standard or quality of educational institution according to certain criteria, and declares about the institutions found to be of acceptable quality. It may be a government agency like a State department of education, or a voluntary organization like a regional association of colleges. Whether it is a national, regional or State accreditation, will depend upon the accrediting agency formed at a national, regional or State level.

accrediting procedure (U.S.A.): the process of accrediting which usually involves the collecting of detailed information about the institution, a visit to the institution by experts, the consideration of the report of experts by a reviewing committee, and the final decision made by the accrediting agency on the basis of recommendation made by the reviewing committee.

acculturation: absorbing certain features of culture of another group or adapting to a certain pattern of culture.

accumulative record: see 'cumulative record'.

acharya (Ind.): [lit., teacher] the word is defined by Manu as one who initiates a pupil and teaches him the *Vedas* and the *Upanishads*. In Brahmanical education, during the *Shrutra* period, a normal type of an educational institution was represented by an *āchārya* along with his pupils who lived at his own house as members of his family under the discipline of rules governing their life and studies for a period of 12 years, the *āchārya*, however, did not accept any fees and he ranked higher than the *upādhyāya*. In Buddhist education, the residential school was represented by an *upādhyāya* or *āchārya* who was responsible for the studies, health, manners, morals and

spiritual progress of a group of young monks or *bhikkhus* who lived under his guardianship. In the Buddhist system the *upādhyāya* ranked higher than the *āchārya*.

Acharya Narendra Dev Committee (1939) (Ind.): a committee appointed in 1938 by the Government of the Uttar Pradesh under the chairmanship of Acharya Narendra Dev to examine the condition of Primary and Secondary Education in the State and to suggest improvement with a view to reorganizing the whole educational system. The recommendations of the committee, also known as 'The Primary and Secondary Education Reorganization Committee', included: (1) Imparting of compulsory primary education on a nation-wide scale, free of charge and extended for a period of 7 years beginning from the age of 7; (2) Starting of Basic Schools; (3) Substitution of the term 'College' for 'High School' and 'Intermediate College'; (4) Hindustani to become the medium of instruction; (5) Reform of the methods of examinations and stress on 'Intelligence Tests', year's work and teachers recommendations; (6) Preparation of suitable text-books; (7) The setting up of a Provincial Board of Education with two auxiliary boards, one for Basic Education and the other for College Education. The Congress Government could not implement the recommendations as it had to go out of office. The new scheme of secondary education was introduced in 1948.

Acharya Narendra Dev Committee (1953) (Ind.): a committee appointed in 1952 by the Government of the Uttar Pradesh under the chairmanship of Acharya Narendra Dev to re-examine the scheme of secondary education introduced in 1948, based on the recommendation of an earlier committee appointed in 1938 under the chairmanship of Acharya Narendra Dev. This committee made the following important recommendations: (1) A three-year Higher Secondary Course as well as a three-year University Course; (2) Sanskrit as a part of Hindi to become compulsory; (3) A modern Indian language other than Hindi to become compulsory in the Higher Secondary stage; (4) Moral and humanist education to become an integral part of education; (5) Production of text-books by the government; (6) Formation of Students' Advisory Committee to help in maintaining discipline.

achievement: knowledge attained or skills developed by pupils usually in the school subjects, measured by test scores or by marks assigned by teachers or by both. Achievement

Test measures the level of performance actually shown in a given subject or field.

achievement, academic: see 'academic achievement'.

achievement quotient: see 'accomplishment quotient'.

acquired characteristics: mental traits and modifications in the bodily structure which an organism acquires during its life time under the force of inner urge to adapt itself to the environment.

acquisitive want: the desire to possess or to hoard material possessions, e.g. money, clothings, stamps, etc. The objects of the acquisitive want are often those which are esteemed by the society.

action [*karma*] (*Ind.*): see '*karma*'.

active vocabulary: see 'vocabulary, active'.

activism: the philosophy that regards activity, both mental and physical, as fundamental to learning. Activity concept implies that learning takes place only when the person is active. This idea is sometimes mistaken for the need of overt or vigorous activity.

activities, extracurricular: see 'extracurricular activities'.

activities, out-of-school: see 'out-of-school activities'.

activities, social-service: see 'social-service activities'.

Acts, English Education (*Brit.*): see 'English Education Acts'.

acoumeter: an audiometer, i.e. an instrument for testing the hearing. Generally a fixed clicking tone is produced which can be heard upto a certain distance.

acoustic image: a mental picture of sound, pitch, etc.

acoustic method: a method of teaching the deaf through the training of auditory and tactile sense organs by producing sound vibrations.

acquisitiveness: the tendency to collect and possess, or to assert individual ownership. In insects and animals it is the gathering instinct.

action play: the bodily movement of the children which accompanies the direction of a poem. It helps the children to develop a sense of rhythm and the co-ordination of muscles, and to release their tensions in a spirit of play.

action song: song which could be dramatized or could be used for rhythmic bodily movements.

activities, co-ordinate: school activities which help instruction but do not form a part of it, like medical inspection.

activities, extra-class: activities performed outside the regular class work but which are the result of class interests.

activities, extracurricular: activities organized by school clubs, houses, or educational institutions for instruction and entertainment, in which children participate according to their own individual interests and abilities. Such programmes generally do not carry academic credits, though these are encouraged and controlled to a certain measure by the institutions.

activities, intermission: activities which are generally carried out during the school recess period, short vacations, breaks or any time outside the regular class time table.

activities, self-defence: activities like jujitsu, boxing, wrestling and hand-to-hand contests through which one develops the skill and strength to defend oneself.

activity, corecreational: a recreational activity in which both boys and girls participate.

activity, creative: an activity that brings into play one's own ideas, thoughts and feelings leading to self-satisfying expression; activity involving spontaneous self-expression as in drawing, painting, music and dancing.

activity, group: activity carried on by a group as a team work in a spirit of co-operation.

activity school: a school which believes and emphasizes students' free participation in purposeful activities of educative value.

Adam's Reports on Education (*Ind.*): (1835-38) three reports submitted by William Adam, a missionary devoted to the cause of Indian education. He conducted a special enquiry between 1835 and 1838 into indigenous education in Bengal under the orders of Lord William Bentinck. His first report is a digest of the earlier reports on the subject. On the data available he concluded that there were 100,000 schools in Bengal and Bihar, that is, one village school for every 400 persons. The second report is a thorough enquiry of Nattore, in the district of Rajshahi. The third report contains statistics of 5 districts of Bengal and Bihar, and his proposals for the reform of indigenous schools. Adam was quite convinced that a national system of education could be built up in India on the foundation of the indigenous schools.

adaptation, biological: a process of biological change that takes place in an organism which helps it to cope with or adjust to the environment in a better way.

adaptation, social: a process by which individuals or groups modify their behaviour to

adjust to the surrounding cultural setting.

adaptation of instruction: an adjustment of the teaching plan and procedure to suit individual abilities, need and interest.

Adi-parva (Ind.): [lit., first section] the first book of the Mahābhārata containing the birth of Pandu's five sons, the Pandavas, and Dhritarashtra's hundred sons, the Kauravas; the training of the princes by Drona; the growing enmity between the Kauravas and the Pandavas; the first exile of the Pandavas; Arjun's winning the princess Draupadi in a Svayamvara; return from exile and the division of the kingdom between the Pandavas and the Kauravas.

adjustment, education as: the concept of education as helping growth and change in an individual so that he may be better equipped to deal with the various factors of the environment affecting him.

adjustment, emotional: see 'emotional adjustment'.

adjustment, pupil: harmonizing the needs of a pupil with his school environment; the correction of a maladjusted pupil.

adjustment, school: adjusting the school environment to the needs of the pupil.

administrability: a criterion indicating the characteristics of a test that make for ease and accuracy in giving it.

administration, centralized: a system of educational administration in which the major responsibility for direction and control is located at one place at the national or State level, leaving comparatively very little initiative at the local level.

administration, decentralized: a system of educational administration in which the responsibility for direction and control is suitably distributed from higher to lower level allowing fair scope for local initiative in adapting school programmes to local needs.

administration, line: the type of educational administration mostly through executive orders which are received by each officer from the officer above and are passed on to one below in the line.

administration of teaching: the organization of methods, principles and plans of teaching taking cognizance of the available school facilities so that teaching and learning may take place under the most desirable conditions possible in the existing situation.

admission, elastic: a system of admitting a student in a training course at any time or at suitable intervals regardless of how far other students have advanced through the course.

admission, selective: the official control of students' admission in an educational institution on some criteria like personal fitness, academic record, probable future success or residence.

adolescence: a process of development and adjustment during the so-called intermediate or transitional period between childhood and maturity. Conventionally the period is placed between the ages 12-21 for girls, 13-22 for boys. This concept has been viewed in a number of ways by a number of writers. Some think in biological terms and some in cultural terms. Major areas of adolescent development may be stated as (1) Physical growth, (2) Intellectual changes, (3) Changing peer relationships, (4) Changes in interests, (5) Changes in values, (6) Changing relationship with parents, (7) Vocational development.

adolescent spurt: a positive acceleration in the growth of children generally occurring just before or during adolescence. It is particularly notable in respect of height.

adrenals: ductless glands lying just above the kidneys. The adrenals give off a chemical substance known as adrenin or adrenalin, which releases a sugar supply from the liver for energy purposes. The chief effects of adrenin are the production of blood sugar, increase of coagulation rate of the blood and increase of sensitivity of the muscles, thus facilitating contraction.

adult education: formal or informal instruction for mature persons on a part-time and voluntary basis with the object of better social adjustment. In a country with a low percentage of literacy, adult literacy (though not equivalent to education) is the first indispensable step towards adult education. But literacy is not enough; the programme of adult education should be directed to make the adult a responsible citizen. To emphasize this objective of socializing the individual and to differentiate it from the earlier programme of mere academic instruction, the term adult education is being gradually abandoned in favour of social education. Social education, in fact, is adult education with greater emphasis on its social implications. (also see 'social education')

adult education movement (after 1947) (Ind.): after independence the Government of India could no longer remain indifferent to the movement. In 1948, the main objectives and techniques of adult education were formulated on the conviction that mere literacy was not enough, that the adult should be made a responsible citizen in the new society. To

distinguish it from the earlier campaign of literacy and to stress its socializing aspect, the term 'adult education' was gradually abandoned in favour of 'social education'. Up to the end of the First Five-Year Plan, the social education activity was mostly confined in the State sector, though a few central schemes were initiated as pilot projects in selected areas by setting up community centres, janta colleges and library service. In the Second Five-Year Plan, the National Fundamental Education Centre for the training of district social education officers was set up. A country-wide library service was also organized.

adult literacy movement (before 1921) (Ind.):

No significant measures were taken to liquidate adult literacy. There were only a few primary schools conducted at night primarily for the part-time education of children who were employed, and incidentally of those adults who would like to attend. In spite of the recommendation of the Indian Education Commission (1882-83) that night-schools be encouraged wherever practicable, very little was done. The period between 1902 and 1917 marked a large decline in the number of night-schools. The question of adult education began to engage public attention during 1917-22, as the interest in the problem was stimulated by the discussion on the franchise and the passing of Government of India Act, 1919. The United Provinces, the Punjab, Madras, Bombay and Bengal took a lead. The work in the night-schools, however, continued to be largely experimental.

adult literacy movement (1921-1937) (Ind.):

The movement made considerable progress after the transfer of education to the control of Indian ministers in 1921. In 1927, there were 11,158 institutions for men and 47 for women. Unfortunately, the interest in the problem waned with the economic depression that set in after 1927. The number of adult night-schools declined so much that in 1937, there were only 2,016 institutions for men, and 11 for women. Nevertheless, the sixteen years of the diarchical rule (1921-37) were significant because this was the period when valuable spade-work was done for the future development of adult education, when the spirit of service to expand the movement was mobilized among the students and the local bodies, and co-operative societies were energised to assist in the work.

adult literacy movement (1937-1947) (Ind.):

When the Congress Ministries accepted office in 1937, they organized large-scale campaigns to liquidate adult illiteracy. The objectives of the

Adult Education Movement were (1) to teach the illiterate adult the three R's, and (2) to impart knowledge closely correlated to his working life and to give him a grounding in citizenship. Mere literacy without the broader aspects of education was not considered enough, as it would not equip an adult to lead a better and fuller life. The work was taken up with great zeal in the States and the Provinces, but unfortunately the movement slowed down with the resignation of the Congress Ministries in 1940. The work was restarted as soon as the popular ministries assumed office in 1946, and the succeeding period recorded great progress in the field.

advaita (Ind.): non-dualism, the doctrine of monism that teaches that Ultimate Principle alone has real existence and all other things are either illusive or ephemeral. This is in contrast to the doctrine of *dvaita* i.e., dualism which holds that there are two eternal realities, the Ultimate Principle and the Soul. *Advaita* emphasizes the monistic reality with reference to Brahma.

advanced placement (U.S.A.): in some high schools (particularly in the senior year), honours courses designed for the unusually able and gifted students who have completed all the graduation requirements of a year before their contemporaries and who intend to join colleges. The idea is to eliminate repetition and fundamental drill for the gifted students.

advancement, horizontal: the advancement of any educational worker within the same branch of educational service which may involve a change in the nature and size of assignment.

advancement, vertical: the advancement of any educational worker from a lower branch to a higher branch of educational service involving increase in responsibility and remuneration.

Advisory Board of Education, Central (Ind.): see 'Central Advisory Board of Education'.

Advisory Council on Education (Brit.): the Advisory Council on Education (Scotland) set up for Scotland by the Education (Scotland) Act of 1918 to help the Scottish Education Department by giving advice on matters referred to it, or on other matters of educational policy or administration as it thinks fit. Correspondingly, there are two 'Central Advisory Councils'—one for England, and one for Wales and Monmouthshire.

aegrotat (Brit.): [lit.. he is ill] a certificate of illness, on the basis of which a candidate is deemed to have passed an examination although he could not appear in some or all of the papers owing to illness.

aeronautics: a study dealing with the design, construction and flight of aircraft; science of aviation.

aesthetic: a person highly appreciative of the beautiful.

aesthetic judgment: power to judge the artistic values of a thing on the basis of aesthetic principles.

aesthetic quality: a quality of being sensitive to beauty or fine art.

affection: a general term used for feeling and emotion. In an 'affective experience', life is strongly coloured with feeling. 'Affective failure' occurs when one fails to make an emotional adjustment. 'Affective psychosis' is a severe disorder of mood or feeling resulting in disturbance of thought and behaviour, displaying extremes of mood—depression or manic elation.

affiliating university: a university which affiliates or adopts colleges or institutions as its branches. It does not directly control the teaching of the affiliated bodies, but permits them to provide instruction through their own teachers according to the university regulations, its function being one of general supervision.

affiliation want: the desire to be associated with or to be in the presence of another person or persons.

affliction [*klesha*] (*Ind.*): see '*klesha*'.

afterquestion: the question that follows an illustration or a unit of work for testing comprehension.

agama (*Ind.*): spiritual teaching connected with the non-Vedic doctrine of Hinduism comprising mythological, epic, metaphysical and ritualistic matter.

age, anatomical: see 'anatomical age'.

age-and-schooling certificate (*U.S.A.*): a certificate issued by school authorities indicating that a child fulfils age, schooling and other requirements for taking up work.

age-and-schooling certificate limited (*U.S.A.*): an age-and-schooling certificate that permits a youth to be employed only in certain types of work depending on his physical condition.

age-at-grade norms: norms based on pupils grouped or classified by ages within their school grades.

age, chronological: see 'chronological age'.

age, mental: see 'mental age'.

age equivalent: the score derived from age norms on a standardized test.

age norms: tables of values representing average or typical performance on standardized tests for pupils in different age groups.

age structure: age range with reference to a given level or stage of education, for instance

6 to 11 for primary school stage corresponding to grades or classes I to V, 11 to 14 for middle school stage corresponding to grades VI to VIII, and 14 to 17 for higher secondary school stage corresponding to grades IX to XI.

age, subject matter: educational age in a subject matter test. History, arithmetic, reading, geography and other subject-matter-ages are determined by the average marks obtained by pupils of any given age on a standardized test for each subject.

aggressiveness: a tendency for assertive and outgoing action involving abundant initiative, vigorousness, forceful exhibition of the self and a sense of hostility.

aggression: feelings of anger or hostility. Aggression functions as a motive which is often frustration. In animal, aggression causes fear or flight, or fleeing which it goads the aggressor to attack. In man, it is an attempt to destroy or appropriate possession. Adler sees it as manifestation of the will-to-power, and Freud takes it as a conscious expression of the hypothesized death instinct.

agoraphobia: a morbid fear of open spaces, like parks or fields.

agrahara (*Ind.*): a whole settlement of learned Brāhmins with its own means of maintenance granted by kings or generous donors, functioning as a centre of culture and learning. It was a practice of old that on auspicious occasions kings invited learned Brāhmins for settling them in villages and assigning their revenues to them. In these centres, higher education was imparted free in different branches of Sanskrit studies.

agricultural education: education for the duties and responsibilities related to agriculture.

agriculture: subject according to the classification used by UNESCO includes agronomy, dairying, fisheries, forestry, horticulture, rural science, veterinary medicine and similar subjects.

Aham brahmasmi (*Ind.*): [lit., I am Brahma] a great saying from the *Bṛihadāraṇyaka Upanishad*, stressing the identity of all things in *Brahma*.

ahimsa (*Ind.*): non-harming; non-violence. In practice it means avoiding all activities associated with killing or shedding of blood, and in a stringent sense it is opposed to any hurt—physical, mental, moral or emotional—to any living being.

aid, educational: financial assistance like monetary grant for educational purposes.

aid, equalization: financial aid for the equalization of educational opportunities.

aids, projected: see 'projected aids'.

aim, specific: objective reduced to such clear cut terms and specific points that it may be possible to take immediate and definite steps for achieving the goal.

aims in education: goals or objectives which provide direction to all educational effort. Aims help teachers, supervisors and administrators to plan, organize, equip and administer the schools along right lines, and help the public to know what the schools are trying to achieve. Interpretation of the aims of education will depend upon the general philosophy, ethical views, and social and political ideologies of the people and the State, and may differ from age to age and country to country. For Herbert Spencer, education should 'prepare us for complete living'; Sir Percy Nunn held that 'the autonomous development of the individual' was the aim; John Dewey stressed the social aim of education; Mahatma Gandhi meant by education 'an all-round drawing out of the best in child and man—body, mind and spirit'. 'To increase productivity, achieve social and national integration, accelerate the process of modernization and cultivate social, moral and spiritual values' are defined as the educational objectives by the Indian Education Commission 1964-66.

aims of Unesco: see 'Unesco, aims of'.

Aitareya Upanishad (Ind.): one of the *Rig Vedic Upanishads* included in *Aitareya Brāhmaṇa* written in prose and discussing the question of the Self and *Brahma*.

Ajanta (Ind.): a place near Aurangabad famous for 29 Buddhist caves consisting of chapels, monasteries and galleries excavated in the horseshoe curve of a hillside, the earliest ones date from the 2nd century B.C. while others are as late as the 7th century A.D. The exquisite Ajanta murals and splendid sculptures that adorn the caves are among the glories of India's past. Here, in the murals one can see the whole life of ancient India in panorama—the princes in their palaces and ladies in their boudoirs, peasants and coolies, beggars and ascetics together with all the beasts, birds and flowers of India. Everything is masterfully drawn and delicately modelled. Among the masterpieces are the Bodhisattva looking down in compassion holding a white lotus in his right hand, and the glorified Buddha begging his food from Yashodharā, his wife, and Rāhula, his son.

Akademis, National (Ind.): see 'National Akademis'.

Akbar, education under (Ind.): ruled 1556-1605.

Education received a great impetus in his time. He himself kept up his studies throughout his life. Everyday some competent person read to him books of science, history, philosophy and religion. His uncommon thirst for knowledge prompted him to build the famous Ibadat Khana where learned men of every faith held intellectual debates and fearless public discussions. He took much delight in the collection of books and caused many volumes of his library to be richly illustrated. He greatly encouraged painting and music, the latter reached a high excellence in his reign through renowned singers like Miyan Tansen and Ram Das. Akbar introduced innovations and improvements in the educational system, modes of study and curriculum. In the teaching of a language, particularly the Persian, the teacher must look after five things: knowledge of letters, meanings of words, the hemistich, the verse and the repetition of what had been read before. What usually took the learners years was now accomplished within a few months. Educational institutions were multiplied, and several professors were brought from Shiraj. Even private individuals promoted the cause of education by establishing schools and colleges, including the famous madrasah built by Maham Anga, the wet nurse of Akbar. He gave whole-hearted protection to Hindu learning; caused the translations of Hindu classics and scriptures like Mahābhārata, Rāmāyana, Atharva-Veda, Leelavati and Panchatantra into Persian; and provided the education of Hindus in their own culture in the madrasahs along with the Muslims, eager as he was to further the education of both the communities alike.

Ala-ud-din, education under (Ind.): ruled 1296—1316. Ala-ud-din Khilji was uneducated and therefore, slow to appreciate the value of education. He was so self-willed that men of learning tried to avoid his court. He later discovered the disadvantages of his illiteracy and tried to acquire some knowledge of Persian. It is noteworthy that in spite of Sultan's distaste for literary men his reign formed an important chapter in the literary history of India. Famous poets and philosophers flourished at this time. The pious Nizamuddin Auliya, Amir Khusrāu, Amir Hasan, Sayyid Tajuddin, Sayyid Ruknuddin, Shaikh Usman, Amir Arslan, M. Alimuddin are some of the famous names. Berni records that there were learned men in all the departments of knowledge like history, logic, jurisprudence, theology, grammar, and some of these men surpassed the most learned men of Samarkand, Baghdad, Cairo and

Damascus. There were, however, a number of noble men who upheld the cause of learning by their patronage and liberality. This was also the time when linguistic inter-mingling between the Hindus and the Muhammadans had started.

Albemarle Report (Brit.): a report of the Departmental Committee on the Youth Service in England and Wales, under the chairmanship of Lady Albemarle, published in 1960. It advocated a 10-year plan and the setting up of a Youth Service Development Council. It defined the aims of a youth club as association, training and challenge.

Alder's theory: the theory propounded by Alfred Adler that physical, psychological or social inferiority, real or imaginary, may give rise to emotional conflict resulting in neuroses.

Alexander performance scale: a scale comprising three tests designed by W.P. Alexander to measure practical ability, published in 1946.

algebra, fundamental laws of: the three principles, viz., the commutative law, the associative law and the distributive law.

algebraic method: the use of generalized symbolism to transform problem situations into formulas, equations and graphs for highlighting the relations that exist between several factors in the problem.

alienation, coefficient: a measure of departure from perfect correlation.

Aligarh Muslim University (Ind.): a teaching and residential university founded in 1920. It is one of the four universities supported by the Central Government. This was established for the benefit of the Muslim community. It does not affiliate other colleges, even colleges located in the city of Aligarh. Dr. Zakir Husain was its Vice-Chancellor for a number of years. It has seven faculties, i.e. arts, science, law, commerce, agriculture, medicine, and engineering. Degrees awarded by the university are:— B.A., B. Com., LL.B., M.A., M. Com., LL.M., Ph. D., D. Litt., LL.D., Diploma in Foreign Affairs. Medium of instruction followed in the university: English, Hindi and Urdu in P.U.C. (arts, commerce) B.A., B. Com., and English in others.

allness: the tendency to believe that what one knows is all that can be known on the subject.

allosychic: the tendency to be more interested in the outside world than in one's own inner life.

all-or-none law: the fact that an adequate stimulus is required for the muscle or nerve cell to bring about a maximum muscular or

neural reaction, while any inadequate stimulus will totally fail to cause any reaction.

all-year school (U.S.A.): a school which remains open throughout the calendar year. Pupils may attend throughout the year with short breaks or one-fourth of the pupils may go on a short vacation during each quarter.

Alma Mater: [lit., foster-mother] a sentimental expression used to describe the school, college or university to which one belongs or used to belong. In U.S.A. the term is used for a school song or anthem.

alphabetical method: an old method of teaching languages in which a child is first taught all the alphabets and their sounds. These days phonic method is preferred.

alphabet, phonetic: see 'phonetic alphabet'.

alphabet wheel: a wheel-shaped device for teaching letters or their various combinations, produced by the rotation of the wheel.

alpha hypothesis of learning: one of K. Dunlap's principles of learning regarding possibilities of response as a result of frequency of repetition. In 'alpha hypothesis' frequency should promote learning. In 'beta hypothesis' frequency has no influence, while in 'gamma hypothesis' frequency of repetition acts as an hindrance.

alpha test: a battery of eight types of general intelligence tests designed to test large groups of literate individuals at the same time. These tests were used in the American Army during the first world war to determine the relative mental ability of recruits to the army.

Altamash, education under (Ind.): ruled 1210-1236. His political preoccupations did not allow him time to devote to the promotion of learning but he had respect for literary men. The most learned Persian poet and philosopher, Amir Kuhani, came to his court from Bukhara when it was sacked by Changiz Khan. Nasiruddin, editor of historical anecdotes, lived at his court. Fakhru'l Mulk, a man of great learning and scholarship, was his prime minister. Building of a madrasah and giving sound education to his son prove that he was alive to the importance of education.

alternate-response test: see 'test, alternate-response'.

altitude of intelligence: a measure of intelligence with reference to the difficulty level of the problems one can solve.

altruism: a system of ethics based on the notion of the ultimate obligation of each individual to achieve a selfless devotion to others in society. It stands in contrast to self-love or selfishness.

altruistic want: the desire to help others. It

- may be expressed in many ways *e.g.* through philanthropy and sympathy. The person with a strong altruistic want has affection and concern for other people and is usually contrasted with the 'selfish' person.
- alumni association** : an association of former students of an institution.
- alumni education** : the educational facilities provided by a college or university for the betterment of its former students like guidance in reading, professional training, etc.
- ambiguity** : the quality of a test item that makes possible more than one logical interpretation of its intent or meaning.
- ambivalence** : a state of mind in which contradictory feelings, like love and hate, or acceptance and rejection exist simultaneously ; *i.e.*, one is pulled in psychologically 'opposite directions'.
- ambivert** : a person who combines both the types of personalities—introvert and extravert.
- ament** : see 'amentia'.
- amentia** : feeble-mindedness ; sub-normal mental development. Ament is a person characterised by amentia and lacking in mental development to such a degree as to be classified as feeble-minded.
- amnesia** : generally any loss of memory ; specifically, a neurotic reaction in which a person forgets his own identity, or is unable to recall past experience and recognise familiar people and situations. Amnesia may be total or partial. but even in total amnesia it is not that everything learned is totally forgotten.
- amusia** : inability to recognise or to reproduce musical sounds.
- analogical thinking** : see 'thinking, analogical'.
- analogies** : in psychology, a term indicating the relationship of pairs of attributes or qualities as found in tests. Ordinarily, analogies are used to point out in many ways two things are similar, or to strengthen an argument, or to make discoveries.
- analogies test** : see 'test, analogies'.
- analysis, literary** : detailed study of a literary work for highlighting its special features in matters of style, composition, ideas, aesthetic appeal, and moral or philosophical values.
- analysis, propaganda** : the scrutiny of a propaganda to find out the sponsoring agencies, the purpose for which it is used, technique adopted, its truth content, etc.
- analytical psychology** : see 'psychology, analytical'.
- analytic interview** : a fact-finding or fact-reviewing interview of a person by another person or a committee.
- analytic method** : a method of separating an object into its parts and considering their relations to one another and to the whole.
- analytic research** : a study primarily concerned with the analysis of a specific case or variable.
- analytic-synthetic method** : a method of teaching reading in which a word is first broken into familiar parts and then joined to form the whole word.
- anatomical age** : status of physical growth and development in terms of age standards.
- ancient India, science in** : see 'science in ancient India'.
- ancient Indian education, corporal punishment in** : see 'corporal punishment in ancient Indian education'.
- anecdotal method** : a method of studying child behaviour through reports or records of isolated occurrences, as distinguished from observational method.
- anecdotal record** : a running cumulative description of actual examples of behaviour of a child as observed by teachers and counsellors. The description is followed by a comment of the teacher. This record is very helpful in understanding the child.
- anecdotes** : pertaining to significant incidents usually from the lives of great personalities which serve as illustrative material and make narration in history and language lessons more effective. Anecdotes are an important medium in making points better understood and remembered by striking effective associations.
- anger** : a pattern of behaviour resulting from restraint or frustration and involving a strong feeling of displeasure or antagonism.
- animal psychology** : a branch of psychology which deals with the behaviour of animals. The study of animal behaviour has played a significant role in experimental work connected with the study of the development of the mind of man and his behaviour.
- animistic reasoning** : reasoning based on coincidences of nature. For example, if there is a thunder-storm on the day a boy plays hockey after slipping away from school then according to animistic reasoning, the boy's truancy caused the thunderstorm.
- answer key** : a sheet carrying the correct responses for a given test in order to facilitate quick scoring.
- answer sheet** : a separate piece of paper, usually printed, on which the pupil records his responses for a test.
- antahikarna (Ind.)** : a Vedantic term used for the mind characterized by four aspects, *viz.*,

(1) *ahankāra* which identifies with one's own self or ego, (2) *buddhi* which interprets ideas, (3) *chitta* which collects and conserves mental images, and (4) *manas* which compares and classifies ideas and images.

anthropology: the science dealing with man's physical characteristics, his geographical, historical and racial distribution, classification, and social, cultural and environmental development.

Antioch plan: the plan which was developed at Antioch College emphasizing cooperative education and student government.

anti-social: refers to behaviour that is not for the good of society.

antonym test: see 'test, antonym'.

Anushasana-parva (Ind.): [lit., precept section] the thirteenth book of the *Mahābhārata* containing the discourses of Bhishma on statecraft at the end of which he dies.

anxiety, basic: a concept in Kaven Horney's theory of personality; anxiety caused as a reaction to a variety of tension-laden situations giving rise to neurotic needs.

aparigraha (Ind.): non-greed; one of the five abstinences, involving a proper attitude and understanding in taking, holding and using all things that may stimulate greed, like food, clothing, shelter, company of friends, etc., so that one may develop the idea of non-dependence or non-attachment with these things.

apathetic behaviour: see 'behaviour, apathetic'.

apparatus, dotting: see 'dotting apparatus'.

apparatus, gymnastic: the equipment of a gymnasium like parallel bars, balancing benches, ropes, horses, mats, etc.

appellate tribunal: a small committee specially constituted to hear the cases of appeal from teachers against managements.

appendix: matter supplementing the text of a dissertation or book but not essential to its completeness, like a bibliography or explanatory material.

appereception: a process of establishing a relation between what is being presented to the senses and what has been previously learned or experienced. It is the understanding of the new in terms of the old. It is usually known as 'the principle of preparation', or 'the law of readiness'. The principle of appereception in educational method, as formulated and developed by Herbart, implies that learning must proceed from the known to the unknown.

appreciation, art: the process of evaluating, understanding and experiencing any expression of art. Such an appreciation includes two

essential aspects—the emotional appreciation connected with the beauty of colour, design, etc., providing aesthetic pleasure or satisfaction, and the intellectual appreciation resulting from the recognition of artistic techniques and aesthetic principles involved in the work of art.

apprentice teacher: a young man who worked as an apprentice under a schoolmaster to learn the job of a school teacher during the colonial days of America. The term, in modern usage, may apply for a recent graduate from a teacher training institute working in a school for a fixed period and performing almost all the duties of a regular teacher as a part of his training assignment.

approach, mechanistic: see 'mechanistic approach'.

approach, objective: see 'objective approach'.

approach-approach conflict: a conflict in which a person is motivated to approach two different goals that are incompatible.

approach-avoidance conflict: a conflict in which a person is both attracted and repelled by the same goal.

approved expenditure: an expenditure legitimately chargeable. Such an expenditure incurred by a private recognized educational institution is admitted by the education department for the purpose of grant-in-aid.

a priori: relating to the knowledge which is self-evident and based on intellectual principles apart from and prior to experience.

aptitude: a capacity to acquire proficiency in a given line with a given amount of training. Special aptitude ordinarily signifies aptitude of a special kind; e.g., academic aptitude, language aptitude, mechanical aptitude. General aptitude signifies aptitude to acquire proficiency in many activities. Ability connotes present and actual capacity, and aptitude refers to potentiality or innate capacity though the same test may measure both; but an aptitude test is to measure the present capacity that can be used to predict the amount of ability attainable with future training. The aptitude test, the ability test and the achievement test may be distinguishable by the stress laid respectively upon the probable future level of ability attainable, the present level of ability and the past achievement. Talent is a high degree of aptitude or of ability. Gift connotes high ability.

aptitude test: see 'test, aptitude'.

Arabic numerals: 1, 2, 3, 4, 5, 6, 7, 8, 9, 0, and their combinations. This system of numerical notation was originated in India and then introduced into Europe by the Arabs, resulting

in the replacement of the older Roman system of notation. Historically, it would be proper to rename it Indian numerals.

Aranyaka (*Ind.*) : 'forest' treatises as appendages to the *Brāhmanas*, meant for hermits and ascetics. The *brahmachāris* who wanted to continue as such lived in forest hermitages outside the centre of population and their philosophical speculations about soul, *Brahma*, or Immortality formed the text of *Aranyaka*.

Aranya-kanda (*Ind.*) : [lit., forest section] the third book of the *Rāmāyana* dealing with Ram's life in the Dandaka forest with Sita and his brother Lakshman, and Ravanā's carrying Sita off to Lankā in his aerial car *Pushpaka*.

archery [*dhanurveda*] (*Ind.*) : see '*dhanurveda*'.

archives : a repository for public records or documents of historical importance.

area and block sampling : a sampling procedure, used in surveys and public opinion polls, in which the interviewer is sent to specific addresses previously selected.

arhat (*Ind.*) : a term in Buddhism used for one who has attained a perfect understanding of the nature of the beyond and therefore stands ready to free himself from the five subjective bonds, viz., self-love, spiritual pride, desire for life in form, desire for formless life and any ignorance that still persists. Before attaining the condition of *arhat* one has to free oneself from five objective bonds—attachment to the body, uncertainty about the path of liberation, dependence upon ceremonies or outward forms, personal likes and dislikes.

aristocratic view of education : the view that the privileged few rather than the common masses should have the opportunities of education ; this view is not acceptable to the modern educational thinking.

Aristotelian method : the method of discovering relations between the particular and the general through dialectic and inference. It is now used to explain particular phenomena or facts by means of accepted laws and principles.

arithmetic, business : that aspect of arithmetic which particularly applies to business problems like interest, discount, profit and loss, short methods of multiplication, divisions, fractions, etc.

arithmetic, corrective : arithmetic used for discovering and correcting mistakes made by pupils in arithmetic.

arithmetic, functional : arithmetic in which the teaching method and subject content is based on the direct experiences of the child in his home and school situations.

arithmetic, mental : arithmetic in which calculations

are done mentally without the use of pencil and paper.

arithmetic mean : see 'mean, arithmetic'.

arithmetic mean, weighted ; see 'mean, weighted arithmetic'.

arm-movement method : the method of teaching handwriting where the movement of arm while writing is encouraged to eliminate or reduce the unnecessary movements of the fingers and hand.

array : a collection of data arranged in a systematic order.

art, creative : art involving original ideas, thought and imagination for creative work, as distinguished from reproductive skill and imitative work.

art, decorative : art used for decoration and ornamentation rather than structural creation.

art, glyphic : art dealing with carving or modelling in plastic material.

art, methods of teaching : methods used by art teachers for guiding art work. It may be a copy method, dictation method or free expression method depending upon the nature of work. Some art educators have devised their own methods like Dow method (structure method), Cezik method (creative-expression method), Sargent method (graphic-vocabulary method), etc.

Art, National Gallery of Modern (*Ind.*) : see 'National Gallery of Modern Art'.

art appreciation : see 'appreciation, art'.

Arthashastra, Kautiliya (*Ind.*) : a treatise on Polity, attributed to the famous counsellor and prime minister of Chandragupta Maurya, variously known as Kautiliya, Chānakya and Vishnugupta. The Arthshastra is divided into 15 books containing : I. education of a prince ; II. principles of civil administration ; III. civil, criminal and personal law ; IV. police methods ; V. responsibilities of ministers and how a king can get rid of undesirable ones ; VI. elements of politics ; VII. international relations ; VIII. misfortunes connected with gambling, women and drink ; IX. methods of sowing dissension ; ...XII. secret agents ; XIII. securing of divine favour ; XIV. methods of murder ; XV. political science, plan and principles. It is considered a handbook of ruthless statecraft.

articulation : the production of speech sounds by modification of stream of breath through the help of lips, tongue, teeth and soft palate. Articulation Test measures the accuracy in producing various speech sounds, singly or in connected speech. The articulatory defects frequently observed are lisping, sound distortions, sound omissions, sound substitutions and

touch of another dialect. These defects should be distinguished from mispronunciation, stuttering and voice defect.

artistic ability : see 'ability'.

arts, space : fine arts like painting, sculpture and architecture in which the spacial factor is stressed in the use of the term. Painting represents form in two dimensional space while sculpture and architecture represent form in three dimensional space.

arts and crafts education in ancient India : Arts and crafts were held in high esteem during the Vedic age. The carpenter was so important that the king had to go to the house of the chief of the guild for offering oblations at the time of his coronation. In later times due to the rigid caste system, attitude of the society changed. The training in arts and crafts was usually given through apprenticeship system, in which a student bound by an agreement worked under his teacher for a number of years. For a thorough grounding in the different processes of the craft the apprentice had to live in his teacher's house or factory for all the 24 hours. Students had to make their own tools to ensure perfect mastery of the profession. Some knowledge of Sanskrit was necessary for advanced learners in painting, sculpture and architecture. A knowledge of *Purāṇas* and mythology helped the proper handling of various themes related to these sources.

Aryabhaṭa (*Ind.*) : [476 A.D.—520 A.D.] the first great name in the history of Indian mathematics. He was born in Pataliputra but very little is known about his life. He gave explanations for solar and lunar eclipse, discovered solutions for simple indeterminate equations and indicated the method for accurate determination of the value of pi, but it is surprising that this value was never used by any mathematician in India before the 12th century.

Asato ma sad gamaya (*Ind.*) : [lit., Lead me from unreal to the real] a great saying from the *Bṛihadāraṇyaka*, the complete form of the aphorism being '*Avir āvir mā edhi, asato mā sad gamaya, tamaso mā jyotiḥ gamaya, mrityor mā amṛitam gamaya*' meaning 'O Manifest, manifest to me ; lead me from the unreal to real, lead me from darkness to light, lead me from death to deathlessness'.

asana (*Ind.*) : bodily posture specially used in meditative practices. In *yoga*, it implies a comfortable seat, and the mastery of *āsanas* is the third of the eight progressive stages of *yoga*. It is believed that certain *āsanas* develop certain thoughts and certain potencies. For its full impact *āsanas* need to be accompanied by

particular positions of the hands, internal contractions, breath control, visual concentration and the utterance of *mantras*. In its advanced stages the practice of *āsanas* may prove extremely dangerous in the absence of proper guidance. Postures like *Siddhāsana*, *Padmāsana*, *Śvastikāsana* and *Virāsana* are chiefly recommended for meditation ; and *Śīrṣhāsana*, *Dhanurāsana*, *Hatāsana* and *Bhujangāsana* for physical fitness.

ascendant behaviour : see 'behaviour, ascendant'.

Ashoka, education under (*Ind.*) : ruled 272 B.C.—232 B.C. The sight of misery and bloodshed in the Kalinga war proved a turning point in the career of Ashoka who became devoted to the practice of Dharma (morality and piety) and the instruction of the people in Dharma. His instruction in morality as well as for ordinary business, engraved on innumerable stone pillars, rocks, cave-walls, and written in various forms of Prakrit, were obviously intended to be read and understood by the public generally, and their existence presupposes a widely diffused knowledge of writing and a high percentage of literacy. Some authorities believe that the percentage of literacy during Ashoka's reign was higher than that achieved during the British Rule. The Gurukulas and Buddhist Monasteries served as residential educational institutes where students lived with their preceptors and learned scholars, and learned at their feet. Great stress was laid on obedience to parents, preceptors and elders ; proper treatment of the high and the low, the aged and the distressed ; and the development of virtues like charity, compassion and truthfulness.

ashrama (*Ind.*) : a hermitage of a sage, or a dwelling place of a teacher and pupils for educational or religious purposes. The term is also used for one of the four stages into which the life of an individual was divided : (1) *Brahmacharya*, a period of adolescence when one as a student led a celibate and austere life at the home of his teacher, mastering the Vedas or part of them ; (2) *Grihasthya*, a stage of married householder whose duties included the establishing his line, the performance of the sacrifices and the discharge of his civic duties ; (3) *Vānaprasthya*, the stage when having discharged his duties as a householder the individual left his home for the forest to devote himself to meditation and to prepare for final renunciation ; (4) *Sannyās*, the stage of renunciation when the individual broke all his earthly ties and became a homeless wanderer.

This scheme represented the ideal rather than the real, for many young men remained in the first stage and only a few went beyond the second.

Ashrama-parva (Ind.) : [lit., hermitage section], the fifteenth book of the *Mahābhārata* containing the retirement of Dhritarāshtra and Gandhari (parents of the Kauravas) and Kunti (mother of the Pāndavas) to a forest hermitage where they all were burned to death in a great forest fire.

Ashtadhyayi (Ind.) : see 'Panini'.

Ashtanga-marg (Ind.) : the noble Eightfold Path preached by the Buddha : Right Views, Right Resolve, Right Speech, Right Conduct, Right Livelihood, Right Effort, Right Recollection, and Right Meditation.

Asian Games : games celebrated every four years, two years after the Olympic Games, under the auspices of the Asian Games Federation founded in New Delhi in 1949. The Asian Games are conducted on the lines of the Olympic Games, except that the number of events is smaller. The Federation consists of most of the Asian countries, and the first Games were held in New Delhi in 1951.

Asian Institute of Educational Planning and Administration : an institute founded in 1962 in New Delhi, under the sponsorship of Unesco in collaboration with the Indian Government, to provide in-service training courses in educational planning and administration to the officers of the Ministries and Department of Education of the nineteen participating member States from Asia.

Asian Seminar on Implications of Planning Education (1967) : the seminar organized by the Asian Institute of Educational Planning and Administration under the auspices of Unesco at New Delhi from 11 December to 16 December, 1967 to discuss topics which call for understanding and co-operation among government authorities in the planning and administration of programmes for the development of human resources.

Asian Seminar on Research in Educational Planning (1967) : the seminar organized by the Asian Institute of Educational Planning and Administration with the co-operation of Unesco, at New Delhi from 18 December to 22 December, 1967. The seminar analysed the following two problems for carrying on meaningful research : (1) Raising productivity and reducing costs in established educational systems in Asia, and (2) Adjusting popular demand for education to practical needs for national development.

aspiration, level of : the level at which a person sets certain goals and hopes to reach them. It is the standard by which a person judges his performance as good or bad. The level of aspiration can be found by asking a person before a performance as how well he expects to do it. It is different from 'achievement' which is the actual performance, and 'ambition' which may be at a higher level and which one strives for.

assembly room : a special room, may be an auditorium, with a raised platform used for school assembly, announcements, lectures, debates, drama, etc.

Assessment Committee on Basic Education (Ind.) : a committee appointed by the Government of India under the convenership of Shri G. Ramachandran 'to survey the existing situation regarding Basic Education in the various States and to think out ways and means of bringing about effective improvements'. The committee submitted its report in 1956. The major recommendations of the committee included : (1) The government should set up a Central Research Institute of Basic Education and help the establishment of full-fledged Post Graduate Basic Training Colleges ; (2) All elementary schools and teacher training should be converted to Basic Schools and Basic Teacher Training ; (3) English should be offered as an optional subject from the 6th grade onwards ; (4) Teachers' Training should become more efficient and real, and should provide, among other things, experience of a co-operative democratic community work ; (5) A Basic School should have adequate quantities of needed raw materials, adequate craft equipment, minimum land (3 acres for Senior Basic School), basic trained teachers, work based on student self-government, systematic craft work, correlated method of teaching, community contacts, congregational prayers and a library ; (6) Examinations should be wholly internal based on periodic assessment.

assignment : a definitely designated activity to attain certain learning outcomes that contribute to the development of the class work, rather than to a task which the pupils are asked to do outside the class.

assignment, indeterminate : an assignment having no minimum or maximum requirements, but a student has to work to the best of his ability.

assignment, teacher : the appointment of a teacher to a certain position with certain duties in a school. It may also mean the position and duties assigned to a teacher.

assignment, differentiated : assignments differing in complexity, difficulty and content according to individual needs, interests and abilities of students in a class.

assimilation : the process of receiving new knowledge in terms of past experience.

assimilation, law of : the law that newly acquired knowledge or skill tends to become a part of one's total experience.

assimilative reading : see 'reading, assimilative'.

association, free : see 'free association'.

association, parent-teacher : see 'parent-teacher, association'.

associational reading : see 'reading, associational'.

association area : a general term for an area of the cerebral cortex concerned with learning and memory.

association neuron : a neuron, usually within the central nervous system, which occupies a position between sensory and motor neurons.

associative spread : the learning of facts directly related to the immediate task in hand.

assumed mean : the midpoint of the class interval in which it is "guessed" that the arithmetic mean will fall.

asteya (Ind.) : non-stealing; one of the five abstinences including the absence of envy and covetousness.

astrophobia : morbid fear of the sky or the vast celestial space.

Ashvamedhika-parva (Ind.) : 'ashvamedha section', the fourteenth book of the *Mahābhārata* containing Yudhishtira's horse sacrifice and Arjun's adventures.

Atharvaveda (Ind.) : It contains 731 hymns of 6,000 stanzas compiled in 20 books having much original matter not to be found in *Rigveda*. It makes mention of various kinds of herbs as remedies against various types of diseases and injuries and therefore may be considered as the oldest work on Indian medicine. Besides being a religious literature, it extends its reach in the field of secular sciences. It contains hymns on *brahmacharya* and on system of studentship.

Athenian education : In Athens the man of wisdom was emphasised more than the man of action. The Athenian ideal was beauty and grace in body, mind and spirit. Education was conceived as a protection for the State but at the same time it was believed that the best preparation for citizenship was development of the individual through participation in the religious, social, political and military activities of the State. In opposition to Spartan totalitarianism, the Athenian government did

not try to control the education of its youth completely. Education was for a class only, limited to male citizens, the girls as well as the slaves being excluded. Civic training was the dominant type of training in early Athenian education. The Athenians believed that music, poetry and dancing had an ennobling influence on intellect and morals. "In union with poetry, music leads the soul to virtue and impresses it with courage."

athleticism : the term used for the low status of the physical education in Greece at the time of the Roman Empire when the high ideal of sportsmanship and physical fitness gave place to professionalism.

athletics : exercises, games and physical contests on competitive basis which require agility, endurance, skill and strength. The athletics can be organized either on an intramural basis with competition confined within the institution or inter-school and inter-collegiate basis with competition between institutions. A well-balanced programme of athletics should develop vigour, courage, endurance, neuro-muscular skill, general health, and qualities of sportsmanship like courtesy and fair play.

atman (Ind.) : [lit., soul or spirit] the term is sometimes used to mean *Jeevātman*, the individual soul as distinct from the *Paramātman* the Supreme Soul, Universal Soul or Brahma. The identity of the individual soul and the Supreme Soul is the central theme of the *Upanishads* and *Vedānta*. In an individual the *ātman* is eternal, indestructible and unfettered, which finds its temporary abode in the body which is perishable.

attainment test : a test to assess what the child has achieved in learning and is used for assessing progress in school subjects.

attendance : the act of being present in the school. Opinions differ on the point, as some authorities hold that attendance would imply actual participation in school work and activities, and not mere physical presence.

attendance, compulsory : school attendance for children upto a certain age made compulsory by the law of a State or country.

attendance authority : a committee or a person charged with the responsibility of enrolling children of compulsory age in schools and enforcing their attendance.

attendance enforcement : methods for ensuring regular attendance of school children upto a certain age as prescribed by law, either by legal force or persuasion or by removing the causes of non-attendance.

attendance law : the law of a State or country

that lays down the conditions under which each and every child upto a certain age must attend a school.

attendance notice : the first step in the enforcement of primary education when the guardian of every child of the compulsory age is served with a notice at least a month before the beginning of the new academic year so that he may send his child to a recognized school within a specified date.

attendance order : a written notice to the defaulting guardian directing him to cause his child attend a school from a specified date.

attention : an act of focusing on certain aspects of current experience, or of concentrating on certain items of consciousness; a sensory adjustment for optimal stimulation. Attention has a focus in which events are clearly perceived and a margin in which they are less clearly perceived. At one time, inattention to instructional material was considered a behaviour problem. Now it has been found that attention largely depends upon how much the material seems important to the child and how much he understands it. Fatigue, lack of interest, personal worries and fears are not favourable for holding attention.

attitude, valence of : see 'valence of attitude'.

attitude interconnectedness : the characteristic of an attitude which refers to the degree to which it is interrelated with other attitudes.

attitude research : research pertaining to attitude and its measurement. L.L. Thurstone and his co-workers were the first to establish scale from which they could estimate the 'extremity' or measure the strength of attitudes. R. Likert made some improvement upon this scale in 1932. L. Guttman made a notable advance in this field. Attitudes are assessed largely through verbal measurements. It depends upon the answers given to how one feels, likes, or does not like, or what one would do in a given situation.

attitudes : a learning outcome represented by a state of mental readiness which exerts a directive, or compulsive influence upon an individual's behaviour. It is a predisposition to react to a certain object in a certain way. There is some relation between verbal attitude and behaviour. A person generally says what he feels and his behaviour is mostly guided by his feeling. But it may not always be true. In matters of deep seated attitudes it has been found that though there has been a change in the verbal attitude, behaviour has remained almost unchanged. Attitudes are generally the outcome of values and mores

implied in the environment surrounding the young mind. Schools should therefore endeavour to build up a good environment where favourable attitudes may find healthy nourishment.

attitude test : see 'test, attitude'.

attribute [*guna*] (*Ind*) : see '*guna*'.

atypical behaviour : see 'behaviour, atypical'.

atypical child : a child who indicates a marked deviation from the normal in respect of one or more physical, mental or social characteristics.

Auckland's Minute (*Ind.*) : a minute of November 24, 1839 written by Lord Auckland, the Governor General of India. In this minute Lord Auckland after studying the causes of the dispute between the 'Orientalists' and the 'Occidentalists' tried to satisfy both the parties and outlined the future policy of the Government : (i) Existing Oriental colleges may continue and receive the same grant as they were receiving previous to Bentinck's Minute ; (ii) Existing Oriental colleges may start English classes if they so desired ; (iii) One-fourth of the students of these colleges may receive scholarships ; (iv) Books of instruction in Oriental languages may be published out of funds sanctioned for Oriental education.

audio aid : any device to supplement regular instruction or to stimulate learning process through the sense of hearing, like natural sound, public addresses, phonograph recording, radio programs, etc.

audiogram : a graph representing the absolute threshold of hearing at different frequencies.

audiometer : a device for measuring the audiogram, used to detect deafness.

audio-visual aid : the term implies the use of material which assists the child to gain correct concepts through visual and auditory presentation of concrete learning material. Aids include pictures, graphs, cartoons, maps, bulletin boards, blackboards, charts, dramatics, specimens, models, posters, motion pictures, film strips, slides, field trips, picture files, projector, stereoscope, phonograph, recording apparatus, radio and television.

auditorium : a big room or building in a school usually equipped with a well furnished stage for the use of school assemblies, meetings, lectures and for the presentation of motion pictures, plays, cultural activities and other school programmes.

auditory span : the number of words, figures, etc., which can be repeated after a single hearing.

Aurangzeb, education under (*Ind.*) : ruled 1659-

1707: His early education in theological writings made him an orthodox and gave him a puritanic taste which explains his general distaste for music, painting and poetry unless it contained a mural. He tried earnestly to diffuse Muslim learning throughout his kingdom, founded numberless colleges and schools, appointed professors in different parts of the country and provided stipends to Muslim students in proportion to their progress. Unlike Akbar, he cared very little for the promotion of Hindu learning. Sialkot in the Punjab became a great seat of Muslim learning. He ordered monetary help for Muslim students in backward provinces like Oudh and Gujarat, appointed special teachers and kept a check on the progress through monthly examination results, which were regularly reported to him. Bernier has recorded the well-known rebuke that Aurangzeb after becoming emperor gave to one of his old tutors for not instructing him in the practical art of government and 'in the art of war, how to besiege a town, or draw up an army in battle array'.

Aurobindo Ashram School, Sri: see 'Sri Aurobindo Ashram School'.

authoritarian leadership: a type of leadership in which the leader plays a strong directive role in setting group goals and in planning and directing the activities of the members of the group.

authoritarian personality: a cluster of traits found in some persons who seek security in authority. It includes high degree of conformity, dependence upon authority, over control of feelings and impulses, and rigidity of thinking.

autism: the tendency to turn away from reality and dwell upon imaginary world; wishful thinking.

autobiography method: a guidance technique in which the child gives an account of his life-experiences from early childhood to the date of writing the account. This account enables the counsellor to have a glimpse of the student's philosophy of life, his personality structure, his way of thinking, his likes and dislikes.

autocratic supervision: see 'supervision, autocratic'.

auto-education: the education that a child receives without the aid of a teacher or tutor.

automatization: the process of getting habituated to certain work that is performed without any conscious effort.

auto-suggestion: suggestion arising from the individual himself.

Auxiliary Cadet Corps (Ind.): [usually abbreviated to A.C.C.] a scheme of training open to all boys and girls in the age-group 13 to 16 in secondary schools with the object of developing character, capacity for leadership, ideals of social service, team spirit, and a sense of patriotism in the boys and girls, so that they become good and disciplined citizens. The scheme came into existence in 1952 as a supplement to the Junior Division of the N.C.C. mainly to meet the pressing demand for more units under the Junior Division. The training has now been discontinued.

average: in statistics, a general term for any measure of central tendency, viz., arithmetic mean, median and mode. It is loosely used for arithmetic mean and is obtained by adding all the scores and dividing the total by the number of scores.

average deviation: the average of the absolute deviations of items from a measure of central tendency, in a distribution (syn., mean deviation).

average use of classrooms: the average worked out by dividing the total number of classrooms available for all periods of a day/week by the total number of classrooms used per day/week. Another way of calculating the average is to divide the total hours available for using the classrooms by the total hours of use of classrooms.

avidya (Ind.): ignorance or condition in which one may err to regard the unreal as real, the temporal as eternal, the impure as pure and the not-self (*anātman*) as self (*ātman*).

avoidance-avoidance conflict: a conflict in which a person is caught between two negative goals. As he tries to avoid one goal, he is brought closer to the other and *vice versa*.

awards: see 'prizes'.

Ayam atma brahma (Ind.): [lit., 'This self is Brahma'] a great saying from the *Bṛihadāraṇyaka Upanishad*, stressing the identity of all things in *Brahma*.

Ayodhya-kanda (Ind.): 'Ayodhya section', the second book of the *Rāmāyana* containing the incident at Ayodhya, the marriage of Rama with Sita, and the banishment of Rama.

B

babble stage : the stage of language development in infants when they repeat monosyllabic sounds.

Babur, education under (Ind.) : ruled 1526-1530. He was a great scholar in Arabic, Persian and Turk. He cultivated the art of poetry, was well versed in music and wrote a number of books including his Memoirs, a work of great merit. He initiated a kind of writing called 'Baburi'. Above all he was a lover of books and had a critical eye to judge good ones. It was his own idea of making a book lucid and interesting by inserting illustrations, as was done in his Memoirs. Interested as he was in painting, he brought to India a good collection of specimens from the library of his ancestors. He entrusted his Public Works Department with the additional duty of conducting postal service, the publication of a Gazette and the building of schools and colleges. He was keenly interested in the promotion of learning of his subjects. Among the learned men of his time, the names of Shaikh Zain Khwafi, Maulana Baqai and Maulana Shahabuddin may be mentioned.

babyhood : the period beginning with the child's ability to sit, and ending with the child's ability to start walking.

backward area : area where the educational progress is not satisfactory.

backward children : children who are slow in their progress. Their backwardness may be due to reasons like (1) Physical defects (2) Malnutrition (3) Uncongenial home conditions (4) Mental defects (5) Lack of individual attention by the teacher (6) Unhealthy school environment.

Baconian method : associated with Francis Bacon (1561-1626) who developed the method of generalization based on objective study of individual and particular cases. It is like the inductive method. Aristotle's was the deductive method.

Baladur Shah I, education under (Ind.) : ruled 1707-1712. He was well-educated and loved the society of learned men. Interest in public education, as in other fields of public work, languished after the death of Aurangzeb. During his reign two colleges were established in Delhi—one founded by Ghaziuddin near Ajmeri Gate and the other by Khan Firuz Jang.

Bala-kanda (Ind.) : [lit., childhood section] the first book of the *Rāmāyana* containing the

narration of the boyhood of Rama of the line of Raghu.

balance board : a narrow horizontal rail about six inches above the ground used for training and testing children in main aining balance.

Balban, education under (Ind.) : ruled 1266-1287. His court was a resort of illustrious men of learning. This was partly due to the fact that Chengiz Khan was ravaging Khurasan and other places which made many distinguished persons to seek an honourable asylum at Delhi. Sultan's respect for learned men is clear from his advice to his son that no pains should be spared to discover men of genius and learning who must be cherished by kindness and munificence. At this time many literary societies grew up in Delhi. Muhammad, the eldest son of the Sultan, had a great taste for literature and he took the lead in the formation of literary societies. The court of the prince was frequented by the most learned men of the time. Amir Khusrau, the famous poet, was his tutor. Sultan's second son also formed a society of musicians, dancers, story-tellers and actors. The noblemen followed suit.

bal bhavan (Ind.) : [lit., children's palace] a cultural and recreational centre for children. It may also serve as a laboratory for the study of children. Bal Bhavan and National Children's Museum, Delhi was established in June, 1956 with a view to provide Delhi children with experiences and activities not otherwise available to them. It also provides leadership and guidance to teachers towards fostering a creative approach in teaching of art and science.

Banaras (Ind.) : see 'Kashi'.

Banaras Hindu University (Ind.) : a teaching and residential university founded in 1916. It is one of the four Central Universities. It was originally founded as a centre for the study of the Hindu shastras and the Sanskrit literature. Pt. Madan Mohan Malaviya, a great nationalist and champion of Hindu revivalism played a leading role in its development. It has seven faculties i.e., arts, science, law, technology, Oriental learning, Ayurveda (medicine and surgery), and theology. Degrees awarded by the university are : B.A., B. Com., M.A., M. Com., Ph. D., D. Litt. It has 14 constituent colleges. English and Hindi are the medium of instruction in B.A., M.A., B. Com., B. Ed., LL. B. and English in others.

Banaras Sanskrit College (Ind.) : a college estab-

lished in 1791 by Mr. Jonathan Duncan (the Resident at Banaras) 'for the preservation and cultivation of the Laws, Literature and Religion of the Hindoos'. It was designed to 'accomplish the same purpose for the Hindus as the Madrasah for the Mohamedans, and especially to supply Hindu Assistants to European judges'.

bar chart : see 'bar diagram'.

bar diagram : a diagram made up of a series of vertical or horizontal bars or rectangles of equal width, the lengths being proportionate to the magnitudes or frequencies of the various classes. When the bars are contiguously placed to represent frequencies the figure so formed is called histogram. (syn., bar chart, bar graph).

bar graph : see 'bar diagram'.

Barlow Report (Brit.) : a report (1946) of a committee appointed in 1945 by the Lord President of the Council, under the chairmanship of Sir Alan Barlow 'to consider the policies which should govern the use and development of our scientific manpower and resources during the next 10 years'. The report was entitled '*Scientific Man-power*'. It recommended that the universities should be so expanded as to double the output of scientists. It, however, pointed out that this expansion should not be at the cost of the study of humanities.

Basic education (Ind.) : the scheme of education outlined at the Wardha Educational Conference (1937) and developed and shaped by the Zakir Husain Committee. It attempts to relate education to national needs and problems. Mahatma Gandhi was the originator of this scheme. The four resolutions of the Wardha Conference which became the main features of the scheme, are : (a) Free and compulsory education for first seven years of schooling ; (b) Mother tongue to be the medium of instruction ; (c) Process of education to centre round some form of manual and productive work in the shape of a craft ; (d) Self-supporting to the extent of covering teacher's pay. (also see 'Report of the Assessment Committee on Basic Education'.)

Basic Education, Assessment Committee on (Ind.) : see 'Assessment Committee on Basic Education'.

Basic English : pertaining to a working knowledge of English based on a minimum vocabulary of 850 words. Ogden conceived the idea of Basic English and desired to elevate it to the position of 'Lingua Franca' of the world. His idea in doing so was to enable people of different lands to carry on business in English by learning only 850 selected words

and a few grammar rules. Classification of words is : (i) Things 650 (ii) Qualities 150 (iii) Operations 100 verbs and propositions.

basic research : see 'research, basic'.

basic skills test : an achievement test devised to measure performance in such types of communication as listening, speaking, reading, writing, and computing.

basic vocabulary : see 'vocabulary, basic'.

Batavia plan : the plan devised in Batavia, New York. It was a form of classroom organization in which two teachers, one called the regular teacher and the other assistant, taught large classes. The regular teacher carried on the usual class recitation and the assistant teacher helped the slow-learning pupils. The plan combined and carried out group and individual instructions at the same time.

bathophobia : a morbid fear of depth or falling from a height.

battery, test : see 'test battery'.

battery of tests : a group of tests to be given to the same subject in succession.

before-after design : a research design requiring a test before the beginning of a study and again at the completion of the study. When the study requires a test only after completion it is termed 'after-only design'.

beginning spurt : a tendency of sudden increase of energy displayed in the beginning of a work. This is reflected in the work curve by a brief elevation at the beginning of a period of work.

beginning teacher : a new teacher entering service without any regular teaching experience.

behaviour : all types of responses made by the individual, particularly those that can be observed. Most psychologists take behaviour as the central theme of their sciences. Today, the problem is how to draw a distinction between behaviour as studied by psychologists and those activities (also sometimes wrongly named as behaviour) studied by physiologists. It has not been accepted by all to define behaviour as a 'whole response', or an outcome of an integration of physiological activities, or the activities of the organism as a whole. There is, however, not much controversy in considering events like thinking and perceiving as psychological, and events like breathing and gland secretion as physiological. Despite differences in defining the term, almost all the psychologists understandingly refer to the same phenomena under the name of behaviour.

behaviour, apathetic : behaviour influenced by the presence of others, like 'showing off' before other persons.

behaviour, ascendant : a kind of aggressive be-

haviour intended to dominate a group or any social situation.

behaviour, atypical : behaviour not in conformity with the accepted normal pattern of a group.

behaviour, clay : a technique to study the aesthetic behaviour of a child after giving him clay to play with.

behaviour, cup-and-cube : a technique to measure the stage of development of a very young child whose method of extracting a cube from a cup is observed and compared with age norms for the same exercise.

behaviour, cup-and-spoon : a technique to determine the stage of development of a very young child whose method of eating with a spoon from a cup is observed and compared with developmental norms.

behaviour, draw-a-man : a technique to determine the stage of mental development of a young child who is made to draw a picture of a man. The resultant picture is then studied and compared with the age norms for the same activity.

behavioural sciences : the sciences concerned with human and animal behaviour, such as psychology, sociology, and social anthropology.

behavioural skill : a skill which involves either overt or internal physical action of the human body.

behaviourism : a view point held in the early 20th century by some experimental psychologists who in opposition to the method of introspection suggested that psychology should confine itself to the study of observed behaviour. The theory largely originated in the work of John B. Watson.

behaviourism, molar : the doctrine that holds that behaviour is emergent and cannot be deduced from glandular secretions and muscle movements.

behaviourism, molecular : the doctrine that holds that behaviour completely depends on glandular secretions, muscle movements and stimuli that occasion them.

behaviour problems : problems which create unusual difficulty for an individual in maintaining satisfactory interpersonal relationships.

bell-shaped curve : see 'curve, bell-shaped'.

Beloe Report (Brit.) : a report of a committee appointed by Secondary School Examinations Council to enquire into secondary school examinations other than the General Certificate of Education. The report, published in 1960, observed that the ordinary level of General Certificate of Education Examination was not suitable for many secondary school students, and recommended a lower level examination

on a subject, and not group, basis. Subsequently, a new School Leaving Certificate, called the 'Certificate of Secondary Education' came into use.

belongingness : the term used by Thorndike intended 'to represent the capacity for association between two or more of the events or factors'. It is dependent on the apperception basis of the learner.

Benedict, rules of : the constitution founded by St. Benedict in 529 for the use of the monks wherein it was directed for the educational needs of the monks that each one should devote 2 hours to reading and 7 hours to labour everyday.

Bengal National College (Ind.) : a college set up in Calcutta in 1906 based on the ideal of National Education, which was accepted as an integral part of the four point national ideology of the Indian National Congress and was declared in the Congress Session of 1906. Sri Aurobindo Ghose was its first Principal.

Bentinck's proclamation : the resolution order dated March 7, 1835 of Lord William Bentinck consequent to the acceptance of Macaulay's Minute. It reads: "His Lordship in Council is of the opinion that the great object of the British Government ought to be the promotion of European literature and sciences among the natives of India, and that all the funds appropriated for the purpose of education would be best employed on English education alone."

best-answer test : see 'test, best-answer'.

beta hypothesis of learning : one of the Dunlap's principles of learning (see 'alpha hypothesis of learning').

Bhagvad Gita (Ind.) : [lit., Song of the Lord] a philosophical interlude introduced in the 'Bhishma' section of the Mahābhārata. Gita (the abbreviated term generally used) is composed in the form of a dialogue between Arjuna and Krishna on the eve of the great battle of Kurukshetra. As Arjuna feels that he cannot fight against his dear ones, Krishna, his charioteer, explains that the death of the body does not involve the death of the soul which is imperishable, and the right course is to act without attachment. The maxim 'your business is with the deed and not with the fruit or result' sums up the teaching of the Gita. Each individual has his special part to play, and in every circumstance there are intrinsically right actions. The philosophy of Gita has widely and deeply influenced the life of the Indian people.

bhakti (Ind.) : [lit., devotion] devotion to God ; absolute faith in the deity and total self-surrender.

der to his will ; an all-consuming personal love for the deity. *Bakti-yoga* is that form of *yoga* which holds that *bhakti* or faith is the way to salvation.

Bharati Braille : a common Braille code for all Indian languages. One of the outstanding achievements in the education of the blind since independence has been the evolution of the Bharati Braille, the main characteristics of which is a substantial measure of uniformity with the Braille code of many other countries, particularly those of our neighbouring countries like Burma and Ceylon. All schools for the blind in India are now using a common code. There were 8 different codes in use before independence.

Bharat-natyam (Ind.) : an ancient dance originated in South India near Tanjore. It is essentially a feminine dance, once associated with the temple dance. It is of a semi-dramatic type, performed as a solo dance in which different roles are alternately played. It combines pure dance patterns in their endless variety, in which gestures of the hand, neck, eye, and each part of the body contribute to produce a spectacle of rhythm, elegance and beauty.

Bhaskara : (1114-1160) a distinguished name in Indian mathematics and astronomy. His '*Bija-ganita*', a work on mathematics, '*Lilāvati*', on algebra, and '*Siddhānta-Shiromani*' on astronomy are significant contributions to the field of mathematics and astronomy. In '*Lilāvati*' he presents his mathematical problems to a beautiful maiden in terms selected from bees and flowers. For instance, 'Out of a swarm of bees, one-fifth part settled on a Kadamba blossom ; one-third on a Silindhra flower ; three times the difference of those numbers flew to the bloom of a Kutaja ; one bee, which remained, hovered about in the air. Tell me, charming woman, the number of bees ?'

bhava (Ind.) : outward manifestation of a being. According to *bhāva* the humans can be classified into three types : (1) those with *Pashu-bhāva* live selfishly for the mere pleasures of the body, thinking and acting grossly, and leading an irreligious and immoral life ; (2) those with *Vira-bhāva* have ambition and aim in life and are quick to respond to their worldly as well as cultural and ethical gains ; (3) those with *Divya-bhāva* are thoughtful, pure, peace-loving and are keenly interested in self-realization and a spiritual goal.

Bhishma-parva (Ind.) : [lit., Bhishma section] the sixth book of the *Mahābhārata* containing description of the battlefield of Kurukshetra ; the doubts of Arjuna ; the teaching of the

Bhagvad Gita : Bhishma's command of the Kaurava forces until he is mortally wounded by the arrows of Arjuna.

bibliology : the science of books including the knowledge of printing, book-binding, book-selling and library science.

bifactor test : a type of intelligence test from the use of which two scores for separate aspects of mental ability are obtained.

bilateral school (Brit.) : a term usually used to denote a secondary school organised to provide two streams.

bilingual school (Can.) : a school having both French and English as media of instruction, provided in areas where there are large number of French-Canadian pupils.

bimodal curve : a frequency curve having two modes, or a tendency of concentration of observations or scores at two different points. It indicates that the sample has been drawn from two distinct populations.

Binet school : a term sometimes used for mentally deficient and backward pupils.

Binet-Simon scale : a scale comprising a series of tests named after the two French psychologists who first devised it in 1905 to measure mental development, usually in terms of mental age or of intelligent quotient. The scale underwent several subsequent modifications and revisions, among which the best known is the Stanford Revision worked out by the American psychologist Terman.

biographical method : a method, in which history is taught as great events revolving round the lives of great men. The idea is that great men represent their time and they influence great historical movements, and therefore, the centre of children's interest should rest on them. Moreover, biography has a great appeal for children and this solves the problem of motivation.

Biological Sciences Curriculum Study : [usually abbreviated to BSCS] an organization composed of biologists, biology teachers and educators established in January 1959 by the American Institute of Biological Science (AIBS) as a means of contributing to the improvement of secondary school biological education. The Headquarters for the study were established on the campus of the University of Colorado, Boulder, and the primary financial support has been provided by the National Science Foundation. It aims to develop materials and texts by selecting the best and the most significant in biology and to present these materials in forms that would best contribute to the desired attitudes and skills, and

that would reflect the structure of biology as it now exists. It emphasizes investigation and study as means of acquiring knowledge in science. Various kinds of materials produced by BSCS after trial and retrieval include three equivalent versions (Blue, Green and Yellow) of texts and laboratory manuals, teachers' guides and hand-books, and films.

bipolar process of education: a term implying that the educative process involves interaction between teacher personality and pupil personality.

Bismillah: a formal ceremony among the Muslims marking the commencement of education of a child at the age of 4 years 4 months and 4 days. The child is taught alphabets and is made to repeat some words or lines from the Quran. It is also called a maktab ceremony. Literally, the word means 'I begin in the name of God'.

blackboard: a very common and convenient tool to aid classroom instruction consisting of a smooth surface of wood, slate, plaster, beaver board, glass or other material used for writing or drawing with chalk or crayon. Its utility increases if it is made of paper material, properly coloured and properly placed with reference to light and the convenience of the student. It should take the chalk easily, evenly and yet sparingly, give a regular and clear mark from the chalk, and reflect no high lights. If easy vision was the only factor for consideration, the black surface would have been replaced by white or cream surface upon which black crayons could be used; but the large white surface is likely to stimulate the retina unduly. Green or even yellow colour 'blackboards' are also in use.

blind, educationally: vision not enough to profit from teaching through visual methods.

blind spot: the point or area on the retina where the optic nerve leaves the eyeball and where there are no photo sensitive receptors. The blind spots of the two retinas are not on corresponding points; and therefore a person can see with one eye what he cannot see with the other.

block grant: a fixed amount of grant settled for a fixed period, as distinguished from a grant open to annual fluctuations.

block practice: the term used to denote a continuous period of teaching practice often lasting a whole term which forms part of the teacher-training course.

blue laws, teacher (U.S.A.): restrictions imposed on the personal freedom of a teacher by the employing agency as written in agreement

forms or school/departmental regulations.

boarding school: a school which provides living accommodation for students. Most Public Schools in England are boarding schools.

board of education (U.S.A.): refers to the governing body of a local educational authority created by legislature act which administers the schools of the community. The powers of the board are usually both mandatory and discretionary.

bodhi (Ind.): perfect knowledge; in Buddhism, a perfect understanding of the nature of the beyond, which marks the *arhat* or Bodhisattva.

bodily postures in yoga (Ind.): see '*āsana*'.

Bogardus scale: see 'social-distance scale'.

Bombay University (Ind.): a teaching and federal university founded in 1857. It is one of the first three universities established in India. The department of statistics is considered to be one of the best departments in the Indian universities. It has eight faculties *i.e.*, arts, science, law, commerce, agriculture, education, medicine and engineering and technology. Degrees awarded by the university are: B.A. (Genl.), B.A. (Special), B. Com., LL.B., M.A., M.Com., LL.M., Ph.D., D.Litt., LL.D., Diploma in Business Management, Diploma in Labour Welfare, Diploma in Industrial Management. There are 46 constituent colleges. English is the medium of instruction.

bond: a psychological term denoting connection between situations and responses. The process of education consists of creation of bonds, changing of bonds and confirmation of bonds.

book: (with reference to statistical compilations) Unesco has defined it as a non-periodical printed publication of more than 48 pages, exclusive of the cover pages, published in the country and made available to the public.

bookmobile: an automobile truck specially equipped for storing books and carrying them from place to place as a travelling library.

Book Trust, National (Ind.): see 'National Book Trust'.

Brahma (Ind.): a post-Vedic deity, also named *Prajapati*. In ancient cosmology he is associated with the creation of the universe. *Brahmā* the Creator is one of the holy trinity of Hinduism, of which *Vishnu* the preserver and *Shiva* the destroyer are the other two. (This word may not be confused with another word '*Brahma*', the Supreme Spirit.)

Brahma (Ind.): the Supreme Spirit, the Supreme Soul, the Universal Essence, the One Entity—are terms generally used to express the idea of *Brahma*. In *Rig Veda* the word was originally used to mean a mysterious entity

that fills all space and time. *Upanishads* essentially constitute an enquiry into the nature of *Brahma* which is incomprehensible, imperishable, and unattached. It is the basis and source of everything, and is the oneness of all. *Brahma* is *Atman*, the self, the individual soul, and when a man realizes this fact, his individual soul merges with the universal soul which is *Brahma* and he transcends joy and sorrow, life and death. (This word may not be confused with another word '*Brahmā*', a post-Vedic deity.)

brahmacharya (*Ind.*) : the first of the four stages into which the life of the individual was divided, the period of adolescence when one as a student, called the *brahmachari*, led a celibate and austere life at the home of his teacher mastering the *Vedas* or part of them. (also see '*studentship in the Arthvada and āshrama*').

Brahmagupta : (598-660) the second great name in the history of Indian mathematics after Aryabhata. He lived in Ujjain and composed '*Brahma Siddhanta*', a mathematical work.

Brahman (*Ind.*) : Brahman, the first of the four Hindu castes. In ancient times the term was generally applied to priests whose duties were to conduct the daily rites and the sacrifices and to study and teach the *Vedas* and other sacred texts. Today the term is not used as a synonym of the word 'priest' though only a Brāhman can act as a priest. The word Brāhman may not be mixed up with '*Brāhmana*', the theological manuals of the *Vedas* for the guidance of priests, or with '*Brahmā*', a post-Vedic deity, or with '*Brahma*', the Supreme Spirit.

Brahmana (*Ind.*) : manuals of the prayer and ritual for the guidance of priests giving details of sacrificial ceremonies; that portion of the *Veda* which is not counted as *mantras*. *Brāhmana* texts belong to a later date than the mantras. The *Brāhmana* texts have two distinct parts : (1) *Vidhi*, which is injunctive of some action and deals with duties, and (2) *Arthavāda* which points out the merits of duties, and instigates their performance.

Brahman sutras (*Ind.*) : famous aphorisms or great sayings with reference to *Brahma* as set forth in *Upanishads*. They are also called *Vedānta-sūtras* which have been extensively commented upon by classical commentators.

Brahmavidya (*Ind.*) : [lit., knowledge of *Brahma*] In Chāndogya, as explained by Shankara, it stands for the *Vedāṅgas* of *Shiksha* (pronunciation), *Kalpa* (ceremonial), and *Chhandas* (prosody).

Brahmi script : see 'scripts, Indian'.

Braille : a system of reading and writing for the

blind through the sense of touch. In the Braille system the letters of the alphabets are represented by various combinations of raised or embossed dots. Communication by raised dots was once in vogue in the Secret Signal System of the French Army. When Louis Braille (1809-1852) went blind, his friend, Barbier, used this secret code for communicating with him. Louis Braille later improved the code for the use of the blind. There are various different grades of Braille.

Braille, Bharati : see 'Bharati Braille'.

Braille slate : a metal frame with two leaves hinged together for writing Braille. The lower leaf contains lines of indentations in the form of Braille cells (two dots wide and three dots high) and the upper has openings just over these cells. Patterns of dots representing letters of alphabets are embossed by a stylus on heavy paper placed between the metal leaves. Braille is written in the reverse order of reading.

Bṛihadāranyaka Upanishad (*Ind.*) : [Bṛihadāranyaka, lit., a great forest] one of the *Yajur-Vedic Upanishads* included in *Satapatha Brāhmana*. It is an early, lengthy and mostly prose *Upanishad* ascribed to the sage Yājñavalkya. It contains the famous dialogues between king Janaka and Yājñavalkya, and between Yājñavalkya and his learned wife Maitreyi. At one place the incoherence of the universe was explained away in a famous dialogue between Uddaka and his son Svetaketu who was asked to put a piece of salt in water and then to taste water from the surface, the middle and the bottom for demonstrating that the subtle essence is universally diffused.

British Academy, The : see 'Academy, The British'.

British Council (*Brit.*) : an autonomous organization financed by the government for the promotion of British culture in foreign countries by providing information, by arranging visits of lecturers, writers and artists and by offering scholarships and grants for a certain period of study in the United Kingdom.

broadcast, classroom : a radio programme, as part of the teaching programme, listened by a class during school hours.

broadcast, school : a radio programme presented by students or teachers of a school.

broken home : a home where one or both parents are dead, or where the parents are separated or divorced.

Brussels Convention, 1948 : Bern Convention for the Protection of Literary and Artistic Works signed on the 9th September 1886. Revised

at Berlin on the 13th November, 1908, revised again at Rome on the 2nd June, 1928 and again at Brussels on the 26th June, 1948.

Bryce Report (1895) (*Brit.*) : a report of the Royal Commission appointed in 1894 under the chairmanship of James Bryce 'to consider what are the best methods of establishing a well organised system of secondary education in England'. It recommended for the establishment of a central authority for secondary education under a Minister of Education, an Educational Council to assist the Minister, and Local Authorities for secondary education of which the majority should be chosen by counties and county boroughs with wide powers.

BSCS : see 'Biological Sciences Curriculum Study'.

Buddhism : one of the great religions of the world based on the teachings of Gautama Buddha born in the 6th century B.C. Buddha was opposed to religious ritual, sacrificial system and caste distinctions. Buddhism inculcates a high system of ethics. The fundamental teaching of Buddhism include the 'Four Noble Truths' and the 'Noble Eightfold Path'. The truth is that sorrow is inherent in ordinary life, and is due to thirst or craving for individual satisfaction. The thirst, the source of sorrow, can be stopped by taking the Noble Eightfold Path. The true pilgrim of the Eightfold Path is led to sainthood and salvation (nirvāṇa) the chief object of Buddhism.

Buddhist education in ancient India : there was no fundamental difference between Hindu and Buddhist education regarding its theory and practice. In the beginning Buddhist education was purely monastic, confined to those who entered the Order, but after some time it was extended to the whole community. Buddhist education centred round monasteries as Vedic education centred round the sacrifice. There were two ordinations for entering the Order. Prabbajjā, the preparatory ordination at the age of 8, and Upasampadā, the final ordination at the age of 20. Buddhist monasteries developed into corporate educational institutions, and some like Nalanda, Valabhi and Vikramshilā became international centres of learning. The door of these institutions were thrown open to all, irrespective of any considerations of caste or country and though organized by Buddhists, their outlook remained non-sectarian.

Buddhist Order [*Sangha*] : see '*Sangha*'.

building fire-proof structure : a building constructed without the use of any inflammable material so that it may be a proof against fire.

building, school : standards of school buildings change according to the educational philosophy, new concepts of educational psychology, novel ideas of architecture and municipal laws. The government, the local authority or the department of education sometimes prescribe minimum standards regarding sanitation, safety and general construction to ensure the protection of the children from fire, accidents and health hazards. Strength of the walls and foundation, carrying load of floors, sewage disposals, ventilation, lighting, water supply, safety, conveniences, and aesthetic fitness are matters of concern. All the school rooms and the hall are sometimes not fully utilized resulting in great waste. Lack of proper planning of the school building or want of proper appraisal of school needs may be an important reason.

building grant : a grant given to a private recognized educational institution at a stipulated rate for the purpose of constructing, extending or purchasing buildings for educational purposes.

buildings, flexibility of school : see 'flexibility of school buildings'.

bulletin board : a board made of soft wood, cork, or any soft material for pasting or fastening papers, pictures or paintings. It displays announcements, records, news items, newspaper clippings, illustrations, work of the children or any other items of interest which the teachers or student leaders want to place before the students. Sometimes class newspapers or wall magazines find a suitable display on the boards. Boards are generally placed at important points on corridors, in classrooms, library, hall and office. The Bulletin Boards expose the students to new ideas and information and brighten the look of the school.

Burnham Committees (*Brit.*) : committees consisting of the representatives of the teachers and Local Education Authorities which recommend to the Ministry scales of salary for teachers in schools or in other educational institutions. The first committee established in 1919 was under the chairmanship of Lord Burnham. These committees usually give recommendations every three years. The Burnham Main Committee is concerned with salaries of teachers in primary and secondary schools, Burnham Technical Committee with salaries of teachers working in further education establishments and Pelham Committee with salaries of teachers in training colleges and of officials in the service of L.E.A.'s.

bursar : a treasurer or an officer chiefly concerned

with finance in a school, college or university.
business English (U.S.A.): study of English with special emphasis to its applicability in business which may include writing of business-letters, advertisements, business reports, minutes of meetings and conferences and skill in sales talk.

business subjects: subjects preparing students for business activities. It may include type-writing, shorthand, book-keeping, office procedures, salesmanship, advertising, business English, general economics, economic geography and consumer economics.

C

calculation: the use of four fundamental operations in arithmetic with numbers and letters. (syn. Computation)

calculation, mechanical: computation by the help of machine calculators or simple abacus.

Calcutta Madrasah (Ind.): a college established in 1781 by Warren Hastings, the first Governor-General of India with the main object of preparing 'the sons of Mohamedan gentlemen for responsible and lucrative offices in the State.' The period of studies extended over 7 years and scholars received stipends. The medium of instruction was Arabic.

Calcutta University (Ind.): a teaching and affiliating university founded in 1857. It is one of the three universities first founded in India. Its departments of History, Economics, Physics and Chemistry are well-known for their high standards. The university has seven faculties *i.e.*, arts, science, law, commerce, medicine, education and engineering. The university awards these degrees: B.A., B.A. (Hons.), B. Com., B. Com. (Hons.), LL.B., B.Sc. (Home Science), M.A., M. Com., LL.M., D. Litt., D. Phil., LL.D., Diploma in Labour Welfare, Diploma in Business Management, Diploma in Guidance and Counselling. There are 7 constituent university colleges and 116 constituent colleges. English is the medium of instruction followed in the university.

Calcutta University Commission 1917-1919 (Ind.): a commission appointed by the Government of India in 1917 under the chairmanship of Dr. Michael Sadler, the Vice-chancellor of the University of Leeds, 'to enquire into the condition and prospects of the University of Calcutta and to consider the question of a constructive policy in relation to the question it represents'. Among the Indian Members of the Commission were Sir Asutosh Mukerji and Dr. Zia-Uddin Ahmed. The major recommendations were (i) Three-year degree course, (ii) Establishment of a Board of Secondary and Intermediate

Examination in each province; (iii) Less rigid Government control over universities; (iv) Appointment of staff by special selection committees including external experts; (v) Interests of Muslim students to be safeguarded. It is sometimes referred to as 'the Sadler Commission'.

Calcutta Vidyalaya (Ind.): a college founded in 1816, which became the first Government College in India imparting higher instruction through the medium of English.

Calligraphy: the art of fine handwriting with special attention to style, orderliness and beauty. At the time of Akbar, the following types of writing were prevalent: Ghubar, Muhaqqaq, Naskh, Raihan, Rika, Suls, and Tauqi. Akbar gave great impetus to good penmanship particularly to the Nastaliq style. Before the printing press, clear and neat handwriting was a necessity and, therefore, it developed into an art.

callisthenics: formal exercises of arms, legs and trunk without the use of apparatus.

Cambridge plan (U.S.A.): a plan of elementary school teaching devised in Cambridge, Massachusetts to accelerate the progress of bright students. The plan consists of two parallel courses, one of 8 years duration for average students and the other of 6 years for bright students, with the facility of transfer from one course to another.

camp, institutional: camp organized by some character-building organization, like Boy Scouts or Girl Guides.

camp, school: camp organized by a school to provide students opportunities for educative experiences in their natural environment.

camp craft: knowledge and skill required for camping, like setting up the camp, using camp equipment, etc.

campus: the grounds of a school, college or university where the main buildings are situated.

cantab. (Brit.): a member of the Cambridge

University pertaining to Cambridge. It is an abbreviation based on the Latin word 'Cantabrigia'.

capacity of classroom : the number of students that can be accommodated in a classroom according to the prescribed number of square feet of floor or cubic feet of space allowed per student. The term is sometimes loosely used to mean the number of seats that can be provided in a classroom.

capacity use : the maximum utilization of a school building, classroom, laboratory, etc., during the standard hours of work in the building.

capitation grant : a grant assessed on the basis of the average number of pupils regularly attending school at a fixed rate per pupil.

card, flash : see 'flash card'.

card catalogue : properly indexed list of books and periodicals written or printed on cards arranged in alphabetical order.

Cardinal Principles of Secondary Education (U.S.A.) : the title of the U.S. Bulletin 1918 No. 35, covering one of the reports of the Commission on Reorganization of Secondary Education appointed in 1913, and including the seven objectives of secondary education : (1) safeguarding and promoting health ; (2) increasing the proficiency in fundamental processes more effectively ; (3) building right attitudes towards home responsibilities ; (4) developing an effective programme of vocational guidance ; (5) providing civic education so that the individual may well act his part as a member of neighbourhood, city, State and nation and understand international problems ; (6) training in the worthy use of leisure ; and (7) developing ethical character through wise selection of content and methods of instruction, social contacts and opportunities for developing sense of personal responsibility, spirit of service and principles of democracy.

career conference : a conference represented by teachers, parents, employers and persons from different vocations for disseminating information about various careers and occupations open to school leaving children.

cartography : activities concerning the preparation of maps and charts.

case conference : a single though fairly long conference during which there is an orderly presentation of all the facts and points of view regarding a subject. It involves the pupil, his teachers, the counsellor, the principal and others connected with the welfare of the child.

case history : a short report about individual's behaviour, family background and personal

history. Cumulative record and test results may also form its part.

case method : a method of social investigation in which everything that is unique or significant in the lives of selected persons or institutions is very carefully examined.

case study : a method which makes the individual's needs the centre of the social worker's concern. In this method specialized techniques are used for collecting information, determining difficulties, and treating the problems of an individual. School teachers can also utilise this method for understanding the maladjusted child so that he can be handled in a better and effective manner.

caste system (Ind.) : a type of social organization classifying individuals in terms of their religious, social or occupational status. By the end of the Rig Vedic period the fourfold division of society into Brāhman, Kshatriya, Vaishya, and Shudra was recognized. In theory the classification was functional. The Brāhman's duty was to study and teach and to sacrifice ; the Kshatriya's duty was to protect the people, fighting in war and governing in peace ; the Vaishya's duty was to breed cattle, till the earth and pursue trade ; Shudra's duty was to serve the three higher classes. The first three classes were called dvija, the twice born, as they were believed to get a second birth, a spiritual one at the time of the Upanayana ceremony introducing them to Vedic education. During the middle ages the classification tended to be religious and social rather than occupational.

casting out nines : a short method of checking arithmetic calculations, especially multiplication and division. The procedure includes : (a) adding each digit in the multiplicand, subtracting as many nines as possible, doing the same for the multiplier, multiplying the remainders of both and again casting out the nines ; (b) repeating the procedure of adding and casting out the nines in respect of the digits of the product. If the remainders obtained is the same in procedures (a) and (b), the calculation is taken to be correct.

catachetical method : a method of oral instruction through stereotyped questions by the teacher and answer by the students. The method is very ancient and was formerly used for religious instruction. An instance of such a set of question and answer is given below :
Question—"What is the chief end of man ?"
Answer—"To glorify God and to enjoy him for ever."

The method aimed at the exact reproduction

of set answers and therefore encouraged rote memory. This method has no room in the modern educational setting.

catalogue, card : see 'card catalogue'.

catatonia : a state of muscular rigidity, seen in certain cases of Schizophrenia. In the catatonic state, a person may remain fixed in a position for minutes or hours.

catchment area : an area served by a particular school from which children come.

catharsis : a Greek word meaning cleansing and purification, used by Aristotle in his survey of tragic drama which produced the experience of fear and pity and effected a purification of the emotions. The term was adopted by S. Freud and now refers to the release or reduction of emotional tension by emotionally relieving the incidents of the past through talking about or acting them out. There is no unanimity of opinion as to the proper technique for producing Cathartic effect.

cause-and-effect test : see 'test, cause-and-effect'.

CAVD Test : Thorndike's battery of tests (1926) which measures academic intelligence and appraises these specific abilities : completion, arithmetic, vocabulary and directions.

census literates : persons who can write their own names in alphabets of any language.

centile score : the percentage of the scores that are equal to or less than the obtained score in a frequency distribution. In this simple method the relative meaning of the score is understood without knowing the original units of measurement. It is sometimes referred to as 'percentile score'.

Central Advisory Board of Education (*Ind.*) : the oldest and the most important advisory body of the Government of India in education established in 1935, to advise on any educational question referred to it, and to call for information and advice regarding educational developments of special interests to India for examination and circulation. The Board includes distinguished educationists from all parts of the country and the representatives of the Government of India, the State Governments, the Legislatures, and the universities, and is presided over by the Union Minister of Education. Until 1949, it was the only advisory body which tendered advice to the Central and State Governments covering every important problem in every sector of education, but thereafter, a number of other advisory bodies were set up to deal with special sectors of education. The Board meets once a year, assesses the achievements of the previous year discusses the significant educational problems

of the day and recommends programmes for the coming year.

Central Advisory Councils (*Brit.*) : the two Central Advisory Councils—one for England and one for Wales and Monmouthshire—set up in 1945 whose members are appointed by the Minister of Education as required by the Education Act 1944 'to advise the Minister upon such matters connected with educational theory and practice as they think fit, and upon any questions referred to them by him'. These councils 'include persons who have had experience of the statutory system of public education as well as persons who have had experience of educational institutions not forming part of that system'. A similar body named 'Advisory Council on Education' was set up for Scotland by Education (Scotland) Act of 1918.

Central Board of Secondary Education Delhi (*Ind.*) : the reconstituted Central Board of Secondary Education came into being with effect from first July, 1962. Though the Board is an autonomous body, its supreme control vests in the Government of India and the Educational Adviser to the Government of India is the controlling authority. The Board conducts examinations at the secondary stage of education. Its services may be availed of by any educational institution in India or outside India, which wishes to prepare candidates for the examinations conducted by the Board and the Board has the power to recognize such institutions for the purpose of its examinations. The Board has been playing useful role in raising the standard of secondary education by making the services of the Board available to various educational institutions in the country and in meeting the educational needs of those students who have to move from State to State. During 1968-69, the number of schools recognised by the Board was 660.

centralization in education : the policy of concentrating the support and control of education in the hands of the Central Government of a State or nation. It is in contrast to 'decentralisation' where support and control of education rest with the local authorities. The major advantages of centralisation are more careful planning and co-ordination, economy of effort, standardization of training, equal distribution of expertise and experience available and greater equality of educational opportunity. On the other hand, the disadvantages include waning of local interest and initiative, lesser awareness of local needs and handicaps, restricted freedom for experimentation and a

small error in decision or policy making resulting in far reaching consequences. Complete centralisation or complete decentralisation cannot stand for an ideal system.

centralized administration: see 'administration, centralized'.

central schools (Ind.): schools functioning under the Central School Organization since renamed 'Kendriya Vidyalaya Sangathan'. In 1968-69, there were 118 schools located in almost all the States and Union Territory of Delhi. They are affiliated to the Central Board of Secondary Education and prepare students for the All India Higher Secondary Examination. The schools have a common syllabus and medium of instruction and facilitate the education of the children of transferable Central Government employees including defence personnel.

central tendency: a term corresponding to average, commonly applied to the arithmetic mean, the median and the mode. In the field of education the data generally collected or available are in a set or group of marks or ages or other measures. It often becomes necessary to find out the central tendency or average of the set which may indicate the typicality or the representative character of the set. Arithmetic mean is the sum of all the measures divided by their number. Median is at the middle point of the measures when orderly arranged from highest to lowest. Mode is the measure which occurs with the greatest frequency in the set. The central tendency, though represents or typifies a set of measures, cannot give the true picture of the set unless it is accompanied by another measure indicating the extent to which the given measures in the set vary from the central tendency.

central universities (Ind.): universities instituted by the Acts of Parliament and financed by the Central Government. There are four such universities: the Aligarh University, the Banaras University, the Delhi University, and the Visva-Bharati.

Centre for Curriculum Renewal and Educational Development Overseas: [abbreviated to CREDO] a centre founded in 1966 on the joint initiative of the Ministry of Overseas Development (U.K.) and the Nuffield Foundation with the purpose of making available to other countries pertinent information about, advice on and help with curriculum development. The Ministry of Overseas Development and the British Council under agreement, work through CREDO in developing their own programmes of educational and technical assistance

in the field of curriculum development.

Centres for Advanced Study (Ind.): 27 university departments selected on the basis of their existing facilities and potentialities to further development to function as centres of advanced study in specific fields. These centres receive special grant for the improvement of the library and laboratory facilities, programmes of teaching and research, recruitment of staff, award of scholarships and fellowships, purchase of equipment, etc.

certificate, blanket teaching (U.S.A.): a certificate permitting to teach all subjects at a certain specified level.

certificate, elementary (U.S.A.): a certificate permitting to teach in the elementary classes of a school.

certificate, reading: a certificate awarded to a pupil for having read a certain number of books.

certificate, supervisory (U.S.A.): a certificate permitting a teacher to supervise or oversee the teaching of another teacher in certain classes or subjects.

certification law (U.S.A.): a statute laying down the minimum qualifications required to receive a certain scale of pay from public funds for teaching in schools.

chair: a teaching position or professorship in a college or university for a person considered eminent in a special field of study.

Chandragupta Vikramaditya, education under (Ind.): ruled 375 A.D.—414 A.D. The period is popularly termed as the golden period of Indian history and culture. The description of Nalanda University as given by Fahien is an adequate proof of the great proficiency which the Indians had attained in the field of education. Great scholars like Kalidasa, Kumara Bhatt, and Dandin flourished during this period. Old works, such as the Epics and Purans were rearranged in their present form. The Dharm Shastras or text-books embodying the teaching of the Brahmanical schools were compiled from the earliest sutras. The law books of Yajñavalkya, the Manava Dharma Sastra, or law of Manu, probably belong to this period. Medical science was wisely studied and Sanskrit medical treatises influenced much of the later Arabian learning. The Kavya or Court Epic, drama, lyric poetry and prose romances or fables were the chief developments in the field of literature. The generous kings and the public supported the teachers by grant of villages. Fourteen subjects of study seemed to form the curriculum. These comprised four Vedas, six Vedangas, the Puranas, the Mimamsa, Nyaya,

and Dharma or Law.

character : a quality of personality evaluated according to the moral demands of a society. There is much disagreement, and uncertainty over the definition of the word. Some interpret it as roughly equivalent to personality, others as synonymous with morality, and still others consider it interchangeable with ethical and spiritual values. Almost all educators have stressed character as a major objective of every school system. Some observers say that much of character development at certain ages is 'caught' and not 'taught'.

character, moral : a set of attitudes, habits, and traits as reflected in an individual's behaviour which conforms to a socially accepted pattern.

character education : education to develop worthy habits, attitudes and beliefs with reference to social, moral and ethical standards. It is universally accepted that education should achieve moral ends and develop character, but there is difference in opinion about what character is and how good character may be fostered. Character is mostly accepted as an inseparable quality of personality. Thus, character cannot be educated apart from the whole personality. There is the need for regarding every aspect of education as having moral potentialities and relating character education to the total educational effort. (see, moral education.)

character pattern : a set of thought, feeling and action tendencies which help to predict conduct.

character trait : one single specific characteristic out of an indefinite number that constitute the moral personality of an individual.

character trait, negative : an undesirable character trait, like dishonesty.

charana (Ind.) : school for the cultivation and propagation of particular texts of the *Vedas* known as *Sākhās*.

Charles Grant's observations (Ind.) : 'observations on the state of society among the Asiatic subjects of Great Britain', the famous pamphlet of Charles Grant published in 1792. He wrote : "The true cure of darkness is the introduction of light. The Hindus err because they are ignorant..."

chart, E : a chart used for testing vision. It consists of several lines of symbols similar to letter E, graded in size according to the Snellen Scale.

chart, fingering : a diagram depicting the position of fingers on keys, strings and holes of a musical instrument for learning to play it.

chart, profile : see 'profile chart'.

chart, snellen : a chart for testing vision consist-

ing of lines of black letters or symbols graded in size. (also see 'chart E'.)

Charter Act of 1813 (Ind.) : an Act of the East India Company that for the first time made an annual provision for a sum of not less than one lac of rupees for the promotion of learning. Clause 43 of the Act reads : "It shall be lawful for the Governor-General-in-Council to direct that out of any surplus which may remain of the rents, revenues, and profits arising from the said territorial acquisitions, after defraying the expenses of the military, civil, and commercial establishment and paying the interest of the debt in manner hereinafter provided, a sum of not less than one lac of rupees in each year shall be set apart and applied to the revival and improvement of literature and the encouragement of the learned natives of India and for the introduction and promotion of a knowledge of the sciences among the inhabitants of the British territories in India." This clause is regarded as the foundation stone of English educational system in India as it was admitted by the British Parliament for the first time that 'education in India had a claim on public revenues'.

Chatvari ary satyani (Ind.) : the Four Noble Truths preached by the Buddha : (1) the Noble Truth of sorrow that birth, age, disease, death, separation, wish unfulfilled, all is sorrow ; (2) the Noble Truth of the Cause of Sorrow is thirst, thirst for sensual pleasure, for continued life, for power ; (3) Noble Truth of the Stopping of Sorrow is by abandoning desire, by crushing individuality, by non-attachment ; (4) Noble Truth of the way leading to the stopping of sorrow is the Noble Eightfold Path.

cheating in tests : an attempt to get success in tests or examinations by unfair means by giving or receiving help, passing on written work done by another, etc. Factors responsible for cheating are conflicting social standards, the immature impression that success is more important than the means, even if it be unfair, fear of failure, desire for recognition, over-stimulation of competition, poor preparation, poor and uninteresting teaching, etc. Some of the methods adopted to eliminate cheating are associating social disapproval and painful experience to dishonest behaviour, adjusting the school work to the child's age, ability, needs and interests, providing examination conditions that discourage cheating and impressing the fact that though some failure in life is inevitable it is the duty to solve such problems by facing it rather than by evading it through dishonest means.

check-list : a list of objects, items or statements

wherein the subject indicates his views by putting a check mark against items that concern him.

Chemical Education Material Study: (abbreviated to CHEM Study) a study initiated in 1960 by Nobel laureate Glenn T. Seaborg, the then chancellor of the University of California, Berkeley, who obtaining a grant from the National Science Foundation assembled a group of well-known chemists to investigate what could be done to produce the most effective high school chemistry course. A writing group composed of distinguished chemistry teachers of high school and university and industrial chemists produced a text-book, a laboratory manual and a teacher's guide after a good trial and re-trial. CHEM study material also includes a set of motion pictures, special equipment, tests, etc. The course is heavily built on laboratory work whose importance is strongly emphasized. The student is allowed to discover many of the fundamental ideas and relations himself in the laboratory, rather than only read and hear about them.

CHEM Study: see 'Chemical Education Material Study'.

chemotherapy: the treatment of a neurosis or psychosis with drugs that influence the nervous system.

Chhāndogya Upanishad (Ind.): one of the *Sāma Vedic Upanishads* included in the *Chhāndogya Brāhmana*. It contains expositions on the sacred syllable *Om* and makes mention of Jaivali, Shandilya, Uddālaka Aruni, Shvetaketu and Satyakāma Jābāla who was the son of a slave girl. The truth of the oneness of things was demonstrated in a famous dialogue between Uddālaka and his son Shvetaketu who was asked to break a tiny seed of a fruit of the banyan tree to discover nothing which was explained as the essence of the mighty banyan tree.

Chief Education Officer: see 'Director of Education'.

child, abnormal: see 'abnormal child'.

child, asocial: a child who has not yet developed understanding or appreciation of social customs and moral codes.

child, backward: a child who is not able to cope with the class curriculum and class work, but is not sufficiently retarded to be categorized as mentally deficient, I. Q. ranging between 70 and 84. In popular usage, the children who learn more slowly than their classfellows are so designated.

child, bright: a child who is considered somewhat above the average in intelligence and intellectual ability.

child, delinquent: see 'delinquent child'.

child, difficult: see 'difficult child'.

child, dull: the term is loosely used for a slow learning child.

child, gifted: see 'gifted child'.

child, handicapped: physically, mentally, socially or emotionally defective child who is thus at a disadvantage in comparison with normal children.

child, neglected: a child who does not get the normal care expected from the parents, particularly in matters of affection, support, guidance and discipline.

child, only: see 'only child'.

child, precocious: see 'precocious child'.

child, preschool: a child who is no more an infant but has not reached the minimum age for admission to a school.

child, rights of: see 'rights of the child'.

child care: refers to the general efforts and purposes of all social agencies giving attention to child welfare in the family and the community.

child-centred curriculum: see 'curriculum, child-centred'.

child-centred school: a child-centred school stresses freedom, initiative, activity and experiences, interest, creative self-expression for the child. Harol Rugg and Ann Shumaker popularised this expression in their book by the title 'Child Centred School' published in 1928.

child growth (ages 5 to 8), characteristics of: Physical: the annual average growth is 2 to 3 inches, and average gain 3 to 6 pounds; the child exhibits extreme motor activity and shows gradual improvement in speed and accuracy of movement. Social: he is very social, is interested in peer groups and wants group acceptance, he is self assertive and sometimes shows independence by unacceptable language and dirty hands, face and clothes. Emotional: he wants love and affection; he shows fear of imaginary creatures and ghosts. Intellectual: he is interested in dramatic plays, drawings, reading stories about children, rhymes, riddles, and in competitive games involving muscle activity; he loves to collect things; boys love blocks and running games, girls love dolls.

child growth (ages 9 to 11), characteristics of: Physical: the child is normally active and sturdy; he is picky about his food and eats a great deal; rapid muscle growth and lengthening of legs affect posture and movement coordination. Social: he wants to show independence, has a keen sense of right and wrong, grows in self-reliance and self-government and is careless about personal appearance. Emotional: he

is self-conscious about sexual development ; he assumes a feeling of martyrdom, is prone to 'hero worship, likes active games, loves to participate in community activity and shows more loyalty to peers and groups; he cares much for group recognition, approval and praises. Intellectual : the child is becoming more interested in the real than the purely imaginary and fanciful ; he is learning to generalize, make deductions and solve problems ; he is interested in displaying his own individual skills ; boys like stories of adventure, girls like stories of heroines.

child growth (ages 12 to 14), characteristics of :

Physical : individual children grow at different rates and reach adolescence at different times ; the average girl is taller, heavier and more developed than the average boy of the same age ; blushing, self consciousness of the bodily growth, and eccentricities in posture and gait are common. **Social :** the child displays unusualness in dress, speech and manners, assumes affectations, tries many new experiences and withdraws from family ; he sometimes becomes daring, aggressive, argumentative, less obedient and rebellious in his behaviour. **Emotional :** he is sometimes moody and restless and shows anxiety over appearance of secondary sex characteristics ; he shows concern over his future and hungers for success and sometimes may even use dishonest means to achieve his ends ; he spends more time alone and in fantasies and day dreaming. **Intellectual :** he begins to think of future plans, has difficulty in concentrating and has less energy to put into lesson due to rapid physical growth ; he has more capacity to think and reason ; he does not like his own criticism.

child growth (ages 15 to 17), characteristics of :

Physical : generally adult height is reached by boys at 18 years and by girls at 16 years ; boys overtake girls in physical development ; secondary sex characteristics develop further. **Social :** Boys and girls attempt to attract attention by overt actions and dress, develop high ideals, dream of a better world, develop insights into the behaviour of other people and conduct themselves in a more dignified and self-controlled manner. **Emotional :** They develop interest in opposite sex, sometimes fall in love and fall out of love, tend to be overactive to convince themselves of their own worth and try to mould their feeling according to group social life ; prejudices become intensified ; they suffer from a sense of insecurity. **Intellectual :** They find satisfaction in intellectual work, become more creative and imaginative,

develop national and international loyalty, develop fewer and deeper interest, and show interest in natural and mechanical phenomena ; they have greater attention span and have more ability to concentrate.

child guidance : the term used to denote the organization and co-operation of educational, psychological, medical and psychiatric advice and treatment through special clinics in dealing with retarded or difficult children presenting their educational or behaviour problems.

child guidance clinics : clinics primarily concerned with effecting the adjustment of children who are emotionally handicapped and do not require hospitalisation. They utilize the services of specialists from various fields—psychiatrists, clinical psychologists and psychiatric social workers. In 1909, the first child guidance clinic was established in Chicago under the direction of William Healy. It was called the Juvenile Psychopathic Institute.

childhood : the second stage of human development which follows babyhood and usually is divided into (1) 'early childhood' which covers the age group 3 to 5 and (2) 'later childhood' covering the age group 5 to 14.

child psychology : the branch of psychology which studies the characteristics and behaviour of children.

children, under-privileged : see 'under-privileged children'.

children's literature : there has been a great progress in the production of juvenile literature specially written and illustrated for the children. Earlier, folk and fairy tales, selection from adult literature and stories written to include some moral were only available. Modern publications are not only very attractively printed and illustrated but are specially written for the children taking care of their age, reading ability, level of understanding and interest, and covering a very wide field including science, fiction and detective stories.

child study movement : the study and research about the growth and development of children as motivated by the belief that curriculum and methods of teaching should be based on the needs and interest of the children.

chitta-vritti (Ind.) : the ways of working of the mind ; the occurring of ideas (vritti) in the mind. All possible mental processes are grouped into five classes : (1) *Pramāna* meaning true knowledge acquired through, (a) *Pratyaksha* (direct perception, the outcome of senses), (b) *Anumāna* (Inference, the outcome of a knowledge of general attributes), and (c) *Agama* (Authority, outcome of a knowledge acquired

from hearing); (2) *Viparyaya* meaning illusory perception; (3) *Vikalpa* meaning knowledge of an object imagined through words; (4) *Nidrā* meaning sleep, a kind of mental activity; and (5) *Smṛiti* meaning memory, recalling past experience.

chitta-vritti-nirodha (*Ind.*): control (*nirodha*) of the ideas (*vritti*) in the mind (*chitta*). It is the process of attaining *Yoga*.

chivalric education: the training given to the sons of nobles during the middle ages, mostly in physical exercises, social graces and religion.

choral, reading: see 'reading choral'.

choral speaking: a form of artistic expression which implies the recitation of poetry or rhythmic prose by a group of individuals.

chromatic experience: see 'experience, chromatic'.

chronological age: the usual age of the child determined by counting days, months and years.

chronological method: a method of teaching history according to which the entire history course is divided into suitable periods and spread over all the years of secondary stage education.

circuit teacher (*U.S.A.*): a teacher employed in two or more schools to work part-time on a daily or weekly basis as arranged by the employing schools to teach subjects for which part-time work is necessary or teachers are in short supply.

civic education: education for the adults regarding current problems or social and public affairs necessary for creating and fortifying public opinion.

Clarendon Report (*Brit.*): a report (1864) of the Royal Commission appointed in 1861 under the chairmanship of George William Frederick, Earl of Clarendon, to inquire into the revenues, management, system and course of studies and methods of instruction of nine of the 'great' public schools, namely, Eton, Harrow, Rugby, Winchester, Westminster, Charterhouse, Shrewsbury, St. Paul's and Merchant Taylor's. The Commission suggested reforms in the constitution of the governing bodies and recommended a wider curriculum so that every boy should be taught mathematics, one modern language, some natural science and either drawing or music.

class, adjustment: a special class of remedial teaching for those students who have failed to make progress in certain subjects for personal handicaps.

class, fifth (*Can.*): the name given to an extra 2 years course added to the elementary school,

usually in rural areas unable to finance a high school. The two years course is nearly equivalent to IX and X grades of a secondary school.

class, make-up: a class arranged for those students who are behind in certain aspect or portion of class work and who want to make up their deficiencies.

class, remedial: a class of selected students requiring intensive and individual instructional help in some subjects which is otherwise not possible in a regular class.

class, ungraded: a class so arranged that personalized instruction becomes possible, and where each student works at his own rate.

class analysis chart: a device for the graphical representation of class and individual pupil performance on the various parts of certain psychological tests.

class grouping: dividing the pupils of a class into groups according to their interests or abilities for adapting or adjusting teaching to group needs.

classical conditioning: learning that takes place when a conditioning stimulus is paired with an unconditioned stimulus, so named after Pavlov's classical experiments on conditioning.

classification: the process of assigning a pupil to the class or unit of a school for which his abilities and training best fit him. Under this system of classification into classes the children in any one class are taught as if their level of ability in all the subjects is nearly the same. In fact this rarely happens. Children of the same class, more or less are at different levels in different subjects and therefore a uniform plan of instruction fails to meet individual needs. A school having several sections of the same class may make some adjustments to individual differences through 'ability grouping' or 'homogeneous grouping'. The groupings may be based on several factors, including scores obtained, achievement of the previous class, I. Q. Such a grouping though has its own advantages is not free from the criticism that it segregates, is undemocratic and may lead to personality maladjustment.

class interval: one of the divisions of a frequency distribution. It is a range of scores in a class. The score difference in each class interval is the same though the number of cases in different class intervals may greatly differ depending upon the frequency of occurrence.

class period: It is the length of the time devoted daily by a grade, group, or class of pupils, to instruction in a given subject-matter. The length of the period will depend upon several factors including total school time, number of

subjects to be taught, number of teachers available, the maturity of the pupils, the regulations of the department of education. Some subjects and classes within a school may require longer periods than others, but such adjustments may not be possible unless the school has separate teachers for separate departments or it can combine two periods for certain subjects or practical work needing more amount of time.

class rank (U.S.A.): a ratio which expresses what academic position one holds in one's class. When one stands first in a class of 60 students, it is written as 1/60. The last position would be written as 60/60.

classroom broadcast: see 'broadcast, classroom'.

classroom seating chart: see 'seating chart, classroom'.

classroom test: see 'test, classroom'.

class size: The class size is generally indicated by the number of pupils in a class unit administratively under the direct and continuous guidance of one teacher. There are several difficulties of teaching large classes, for a teacher may not be able to pay individual attention to a large number of children, give special assistance to the weaker ones, guide the brighter ones and understandingly check the assignments.

class visitation: see 'visitation, class'.

clay behaviour: see 'behaviour, clay'.

Cleeton's vocational interest inventory: an inventory for measuring the interests of high school pupils and college students and for the youth who have left school. It contains separate forms for men and women. The forms for men contain a total of 630 items to be checked.

clerk, school: an employee of a school for clerical work in the school office.

client centred therapy: a form of therapy developed by Carl Rogers in which the emphasis is in helping the client to mobilize his latent psychic resources in the solution of his own problems. The therapist endeavours to keep the client expressing and exploring his attitudes as freely as possible. Through this, the client comes to understand his problem.

climate of ideas: a body of generally accepted ideas and ideals, and a certain pattern of cultural thinking dominant in the social environment.

climate of opinion: largely accepted views, beliefs and judgements acting as a dominating force in a social group or community.

clinic, reading: a place for examining children with reading handicaps and prescribing

remedial treatment.

clinic speech: a place for examining children with speech defects and providing diagnostic and remedial services.

clinical psychology: a branch of psychology concerned with methods of recognising and treating mental disorders and problems of adjustment.

cloistral school: a semi-monastic school set up in Western Europe during the middle ages for training students to become priests or teachers.

club, book: students' group formed for the purpose of reading and discussing books. Some schools encourage such clubs to stimulate the reading interests of children.

club, special-interest: students' group formed for the purpose of pursuing some activity of common interest.

club, teachers': an organization of teachers for the purpose of developing professional, cultural and recreational interests.

clubs, Four-H: see 'Four-H clubs'.

clues: characteristics of test items that frequently give unintended assistance to the pupil in answering objective-type questions.

coach: a private tutor; a person who gives instructions in the playing of games or in some athletic activities.

coaching: tutoring or giving private lessons to a student or group of students who wish to prepare for special assignments or public examinations.

code, education: a compilation of laws, rules or regulations concerning educational matters governing or guiding an educational system; an educational manual systematically classified for the administration, and functioning of schools and colleges.

code of ethics: a set of accepted moral standards designed to guide conduct.

code of ethics, professional: a statement of ideals and standards of professional conduct accepted and voluntarily adhered to by the members of the profession.

co-education: the provision of instruction for both sexes in the same institution and with the same instructors. In several countries of the world, including India, public opinion is generally not in favour of accepting co-education at the secondary stage. In Britain secondary schools are often co-educational. In the U.S.A., 97% of the school population attend mixed schools. Catholic secondary schools, however, are generally not co-educational.

cognitive world : the social and physical environments as apprehended by the individual. No two persons have precisely the same conception of the world as the individual's cognitions reflect his own environment, his physiological structure, his wants and goals and his experiences. Nevertheless, there are many common features in the cognitive world of all persons as they have similar nervous systems, share common wants and cope with common problems.

cohesiveness : the over-all attractiveness of a group to its members.

collage : a picture made by the use of wood, cloth, metal or other material which is cut out and glued to paper or card board.

collateral reading : additional reading material to supplement and enrich the basic text books. Its purpose is to provide additional information, or reinforce the knowledge already acquired since a text book within its restricted size cannot contain all what one wants to know or ought to know. Since no two books have a similar treatment, presentation or emphasis on all the topics covered, the reader has a broader outlook in going through several books on the subject. The increasing use of research activities and committee reports in the classroom has encouraged collateral reading for the collection of relevant material and references. It is sometimes used as a synonym for 'supplementary reading'.

collective mind : see 'mind, collective'.

college faculty : the members of the teaching staff of a college or university are usually referred to as its faculty.

colleges in India : Prior to the British rule the higher education of the Indians was in the hands of Pandits and Maulvis. It was part of the tradition of Indian scholarship that places of study were also places of residence, and the teacher exercised a paternal care and authority over his pupils. During the British rule, the earliest college providing higher education and spreading Western knowledge was founded in Calcutta in 1782. The government colleges in Bombay and Poona date from 1821 to 1827. There was an unprecedented expansion of collegiate education after the Independence. The number of colleges during 1968-69 was 2,899 and the total student enrolment in the universities and colleges was 19,18,972.

combination room : a schoolroom used for two or more different types of work like the use of a hall as a gymnasium and an auditorium.

combined school : a school of two or more units or departments of different grade levels like a combined primary and secondary school.

commercial education in ancient India : The idea of the scope and nature of commercial education can be had from Manu and Kautilya. Knowledge of commercial geography, the needs of the people of various localities, exchange value and quality of articles, and languages spoken at different trade centres were considered necessary. Theory of banking was also included in the course. In the hereditary training families of high status, such a wide training might have been possible, but generally the knowledge about commerce and trade was picked up by working in the family shops or trades. There were no organized educational institutions, though most of the trades had formed efficient guilds during the first millennium of the Christian era. Training was usually imparted in the family by the elders in real learning situations.

Commission, Calcutta University (Ind.) : see 'Calcutta University Commission'.

Commission, Indian Education : see 'Indian Education Commission'.

Commission, Indian Universities : see 'Indian Universities Commission'.

Commission, Sanskrit (Ind.) : see 'Sanskrit Commission'.

Commission, Secondary Education (Ind.) : see 'Secondary Education Commission'.

Commission (1948-49), University Education (Ind.) : see 'University Education Commission (1948-49)'.

Commission on Human Relations (U.S.A.) : see 'Human Relations, Commission on'.

Commission on Post-war Plans for Mathematics (U.S.A.) : see 'Mathematics, Commission on Post-war Plans for'.

Commission on Reorganization of Secondary Education (U.S.A.) : see 'Secondary Education, Commission on Reorganization of'.

Commission on Secondary School Curriculum (U.S.A.) : see 'Secondary School Curriculum, Commission on'.

Commission on Teacher Education (U.S.A.) : see 'Teacher Education, Commission on'.

Commission on Teaching Mathematics, Joint (U.S.A.) : see 'Mathematics, Joint Commission on Teaching'.

Commission on the Social Studies in the Schools (U.S.A.) : see 'Social Studies in the Schools, Commission on the'.

Committee, Acharya Narendra Dev (Ind.) : see 'Acharya Narendra Dev Committee (1939)' and

'Acharya Narendra Dev Committee (1953)'.

Committee, Hartog (*Ind.*): see 'Hartog Committee'.

Committee, National Service: see 'National Service Committee'.

Committee, Wardha Education (*Ind.*): see 'Wardha Education Committee'.

Committee for Co-ordination and Integration of Schemes operating in the field of Physical Education (*Ind.*): see 'Kunzru Committee'.

Committee of Members of Parliament on Higher Education (*Ind.*): a committee appointed in 1963 to examine the provisions of the constitution regarding the responsibility of Central Government in the field of higher education with a view to finding out the extent to which the Centre could assume greater responsibility in the field. The Committee submitted its report in 1964, and made sixteen recommendations. One of the recommendations was the transfer of the university and higher education from the State list to the concurrent list. Another important recommendation was the establishment of morning, evening colleges and correspondence courses for the benefit of those who are unable to pursue regular courses.

Committee of Ten (*U.S.A.*): see 'Committee on Secondary School Studies'.

Committee on Basic Education, Assessment (*Ind.*): see 'Assessment Committee on Basic Education'.

Committee on Emotional Integration (*Ind.*): a committee appointed by the Ministry of Education, Government of India under the chairmanship of Dr. Sampurnanand in May, 1961 to study the role of education in considering and promoting the process of emotional integration in national life and to examine the operation of tendencies which came in the way of their development and in the light of such study to devise on the positive educational programme for youth in general and students in schools and colleges in particular. The Committee submitted its report in 1962. Among the major recommendations of the committees were (1) re-orientation of the curriculum; (2) special stress on the teaching of social studies; (3) organization of co-curricular activities; (4) improvement in the contents of text books; (5) singing of National Anthem; (6) celebration of National Days; (7) special talks on the unity and oneness of the country; (8) student exchanges and tours; (9) special school projects. The Committee also observed that "it is necessary to evolve an effective national policy on education, the implementation of which will bring the States and the Union

Territories closer together".

Committee on Financing Educational Development (*Ind.*): a committee named 'the Committee on the Ways and Means of Financing Educational Development in India', appointed in 1948 under the chairmanship of Shri. B. G. Kher, Premier, Bombay Province 'to examine the existing financial resources' and 'to make suggestions to ensure that educational development may not be held for want of funds'. The Committee submitted its report in 1950. The major recommendations included: (1) Basic minimum salary of trained Basic School teachers should be Rs. 40 per month; (2) Though the ideal teacher-pupil ratio for the primary stage is 1 : 30, it would be maintained as 1 : 40 for the first 5 years as an economy measure; (3) In urban areas where conditions justify, the same school buildings should be used for two shifts provided different teachers work in each shift; (4) About 10 p.c. of the Central and 20 p.c. of the provincial revenues should be earmarked for education; (5) About 70 p.c. of the expenditure on education should be borne by the local bodies and Provinces and the remaining 30 p.c. by the Centre; (6) All contributions for education, approved by the Provincial or Central Government should be exempted from income-tax.

Committee on Higher Education for Rural Areas (*Ind.*): a committee appointed by the Government of India in 1954 under the convenership of Shri K. L. Shrimali, to review the whole position of higher education in rural areas and to make recommendations for its re-orientation. Major recommendations include: (1) A rural institute should be residential and should provide one-year and two-year Certificate Courses and three-year Diploma Courses; (2) Contacts between the institute and the community should be established through the extension service; (3) A National Council of Higher Education for Rural Areas and State Councils for Higher Education for Rural Areas should be established; (4) Simplicity of style should guide all planning at the institute so that the operating cost may be kept low; (5) Students should work to help pay the cost of their education.

Committee on Mathematical Requirements, National (*U.S.A.*): see 'Mathematical Requirements. National Committee on'.

Committee on Pre-Primary Education in Mysore State (*Ind.*): a committee appointed by the Government of Mysore to look into the various aspects and problems of pre-primary education in the State. The committee defined the

objectives of pre-primary education as the provision of experiences and the proper environmental conditions which will promote the physical, mental, emotional and social growth of children between the ages of three and six. The committee recommended that pre-primary schools should work in two sessions of three hours each per day and that there should not be more than 20 children in a group per teacher. Further the teacher should also have the assistance of a helper.

Committee on Religious and Moral Education (Ind.) : a committee appointed by the Government of India under the chairmanship of Shri Sri Prakasa, the then Governor of Bombay to make a detailed study of the entire question of religious and moral instruction in educational institutions. It submitted its report in 1960. The committee felt that the only cure to the many ills that we are suffering from is in the deliberate inculcation of moral and spiritual values from the earliest years of our lives. The committee further felt that if we lose these we shall be a nation without a soul; and our attempts to imitate the outer forms of other lands without understanding their inner meaning, or psychologically attuning ourselves to them, would only result in chaos and confusion. The committee suggested a broad framework of instruction in moral and spiritual values at different stages of education.

Committee on School Text-books (Ind.) : a committee set up in 1966 by the Government of India under the chairmanship of Prof. K. G. Saiyidain, Director of the Asian Institute of Educational Planning and Administration 'to examine the specific complaints regarding books brought to the notice of the committee' and 'to suggest a practical programme of action, for the preparation and assessment of text-books'. The Committee submitted its report in 1969. The major recommendations included : (1) A balanced presentation of the various religions in the text books ; (2) No disproportionate emphasis on mythological or religious material and comparative neglect of scientific, social, intellectual and aesthetic expressions of man ; (3) Lessons in the nature of formal worship or prayer not to be included in the language text-books ; (4) Selective content in the teaching of history in the early stages, so as to produce the desired influence on the minds of children ; (5) Production of guide material for the interpretation of historical data ; (6) Need for a guiding policy by the Government of India ;

(7) Private authors and publishers to be encouraged and the best talent available to be employed for preparing text-books ; (8) Preparation of model text-books by the Government of India ; (9) Setting up of a suitable machinery for the continuous scrutiny of text-books.

Committee on Secondary School Studies (U.S.A.) : a committee appointed by the National Education Association in 1892 under the chairmanship of President Charles W. Eliot of Harvard University to define the purposes and standards of secondary schools. It recommended a comprehensive but adaptable curriculum, proper selection of individualized programmes of study, and a six-year elementary and six-year secondary school plan. It stated that the main function of the high school was to prepare the youth for the duties of practical life. The committee is also known as the 'Committee of Ten'.

Committee on Women's Education, National (Ind.) : see 'National Committee on Women's Education'.

committee system : a method of deciding procedures and policies through committee discussions where everybody has a chance to contribute.

common school (Can.) : the name given to an elementary school in the Maritime Provinces. In Quebec, the name implies a school where both Protestant and Roman Catholic pupils study.

common school system : the school system which attempts to bridge the gulf between the classes and the masses by providing quality education to all children from every stratum of society, irrespective of caste, creed, community, religion, economic conditions and social status.

Commonwealth list of teacher traits : the following list of 25 traits considered desirable for a classroom teacher as developed by W. W. Charters and Douglas Waples : adaptability, attractiveness, breadth of interest, carefulness, consideration, co-operation, dependability, enthusiasm, fluency, forcefulness, good judgement, health, honesty, industry, leadership, magnetism, neatness, open-mindedness, originality, progressiveness, promptness, refinement, scholarship, self-control and thrift.

communicable diseases : a contagious or infectious disease which spreads from person to person like Measles, Whooping Cough, Mumps, Tuberculosis. The unavoidable close contact of children in the class-room helps the easy spread of such diseases. Timely prevention and prompt treatment minimises the incidence

and dangers of these diseases. Any infectious disease should not be treated lightly as it may entail needless suffering and sometimes dangerous complications. A cough, fever, bad throat or skin eruptions may be some of the early symptoms of communicable diseases. A teacher's knowledge about the diseases and their symptoms, daily inspection of pupils and immediate isolation of anyone showing any signs may prevent the development of any epidemic.

communication : a term used in philosophy indicating a process which enables a human society to continue to exist by transmitting its concepts, habits, attitudes, skills and values from one generation to another.

communication net : pattern of communication among the members of the group. In a free group the net is determined by the status hierarchy, the nature of the group task and other variables.

community : the term used as a synonym for 'society', 'social organization', or 'social system'. There is no complete agreement as to the nature of the community. In popular usage, it is a collectivity of people sharing a limited territorial area for carrying out their daily activities.

community-centred curriculum : see 'curriculum, community-centred'.

community-centre school : a school serving not only the children but also the adults of a community, remaining open during the day as well as in the evening, its room, library, gymnasium and auditorium being used also by the community.

community projects (*Ind.*) : a scheme started in 1952 for bettering the community life in rural areas through community work like promoting adult literacy, opening of community centres and libraries, organizing youth clubs and women's clubs, and starting children's activities.

community resources : museums, libraries, theatres, playgrounds, parks, eminent persons, and any other thing in the community that the schools can use for educative purposes.

community school : a school so intimately connected with the community that it freely utilizes community facilities and resources for the improvement of its educational programmes and it is also being used as a community centre for several community activities.

compact area : a small area selected for an educational programme to be carried out intensively.

comparability : an evaluative criterion indicating

the characteristics of a test that enables the user to obtain results from different administrations that have equivalent meaning ; characteristics of two measures or scores that give equivalent meanings.

comparable measures : scores or measures expressed in terms of the same unit and with reference to the same point. They are subjected to interpretation by the use of the same method.

comparable scores : see 'comparable measures'.

comparative education : a study of the different systems of education in different countries and their significant comparisons to find out the reasons why things are as they are. It is an analytical and interpretative study of factors that determine educational policies and programmes in different countries.

comparative judgment : see 'absolute judgment'.

compensation : a mechanism of adjustment in which an individual substitutes one activity for another in an attempt to satisfy his frustrated motives. It usually implies failure or loss of self-esteem in one activity and the compensation of this loss by efforts in some other realm of endeavour.

completion exercise : a type of exercise in which the student fills the blanks of a statement with the words, numbers or phrases he thinks to be correct.

completion item : see 'item, completion'.

completion test : see 'test, completion'.

complex : an emotionally charged idea ; hate, bias, prejudice and jealousy are complexes.

complex, oedipus : see 'oedipus complex'.

complex school : see 'school complex'.

complex, superiority : see 'superiority complex'.

composite score : a single value used to express the results obtained from the use of several measures.

comprehensive school (*Brit.*) : a term usually denoting a secondary school for all pupils of secondary-school age in a school district offering a variety of courses—general and vocational. It tries to cover all the work done in Grammar, Modern and Technical Schools.

compulsory attendance : see 'attendance, compulsory'.

compulsory education : refers to the period of schooling during which every child must remain in school. Today most of the countries of the world require students to attend school for a number of years. School leaving age varies in many countries. There are numerous cultural, economic, geographic, educational, social, religious and political barriers to the enactment and enforcement of compulsory education laws

in many countries. In India the desire for compulsory education figured in the writing and speeches of our leaders from about 1840. In 1882, witnesses before the Hunter Commission vainly asked for the introduction of compulsory education and in 1912 Gokhale boldly brought a bill for compulsory education only to be thrown out. It was only after the Independence that it became possible to insert Article 45 in the Indian Constitution stating "the State shall endeavour to provide free and compulsory education for all children upto the age of fourteen years within ten years from the date on which the Constitution comes into force".

compulsory school age span : number of years the children of a State or country are required to attend school. It varies from country to country or even from State to State as in U.S.A. computation : see 'calculation'.

concave learning curve : a learning curve in which the former portion indicates a slower rate of learning than the rate indicated in the later portion. This gives a concave shape to the curve.

concentric method : a method used in certain school subjects like history and geography, in which the same field of study is taken up in each year of the school course but studied in increasing detail at each successive stage. The idea is that subsequent treatments of the field will have enlarged scope. The method can be distinguished from the older 'logical' method which tried to teach a topic almost thorough and final. The method is also termed as 'concentric circle method'.

conceptual thinking : see 'thinking, conceptual'.

concomitant learning : see 'learning concomitant'.

condensed courses : the courses specially designed to provide the requisite minimum of education or training within a short time.

conditioning : a process by which stimuli originally not connected with a response or reflex, get to be so connected. Two main types of conditioning experiments are (a) Classical conditioning ; it conforms to the pattern of Pavlovian conditioning as in salivation experiment on dogs. The ringing of the bell and the presentation of food were paired in such a way that the ringing of the bell acquired the power of evoking a salivation response. (b) Instrumental or operant conditioning : a stimulus having evoked a response that brings in rewarding stimulus (reinforcement) is likely to repeat the same response. A cage animal which finds a bar and depresses it resulting in the appearance of food will continue to depress the bar.

conference, individual : a meeting of a teacher and supervisor for discussing class or instructional problems ; a meeting of a pupil-teacher and his supervisor for discussing problems faced by the pupil-teacher during teaching.

configuration : the total pattern, experience, form or structure of stimuli which results from their relationships or arrangements.

conflict : the simultaneous functioning of opposing ideas, ideals and tendencies of behaviour, motives and drives which result in a painful or unhappy state of consciousness.

conformity : an agreement with the recognized standards set by a group.

connectionism : the theory that mental processes consist in functioning of connections between stimuli and responses, called the 'S—R bond'. Thorndike formulated his laws of learning on this theory. He advocated that learning is a process of establishing new connections between stimuli and responses.

connotative meaning : the feelings and attitudes associated with a symbol.

constant error : a type of error that results from the tendency of some scorers to give high marks and of other scorers to give low marks consistently and affects all observations or measurements by an equal amount in the same direction.

Constitution of India, Art. 15 (1), (2), (4) : the Article relating to 'Prohibition of discrimination on grounds of religion, race, caste, sex or place of birth'. It reads :—“(1) The State shall not discriminate against any citizen on grounds only of religion, race, caste, sex, place of birth or any of them. (2) Nothing in this article shall prevent the State from making any special provision for women and children. (3) Nothing in this article or in clause (2) of article 29 shall prevent the State from making any special provision for the advancement of any socially and educationally backward classes of citizens or for the Scheduled Castes and the Scheduled Tribes.

Constitution of India, Art. 26 : the Article relating to "Freedom to manage religious affairs". It reads :—"Subject to public order, morality and health, every religious denomination or any section thereof shall have the right (a) to establish and maintain institutions for religious and charitable purposes ; (b) to manage its own affairs in matters of religion ; (c) to own and acquire movable and immovable property ; and (d) to administer such property in accordance with law."

Constitution of India, Art. 28: the Article relating to "Freedom as to attendance at religious instruction or religious worship in certain educational institutions." It reads:—

(1) "No religious instruction shall be provided in any educational institution wholly maintained out of State funds. (2) Nothing in clause (1) shall apply to an educational institution which is administered by the State but has been established under any endowment or trust which requires that religious instruction shall be imparted in such institution. (3) No person attending any educational institution recognised by the State or receiving aid out of State Funds shall be required to take part in any religious instruction that may be imparted in such institution or to attend any religious worship that may be conducted in such institution or in any premises attached thereto unless such person or, if such person is a minor, his guardian has given his consent thereto."

Constitution of India, Art. 29: the Article relating to Protection of minorities. It reads:—

"(1) Any section of the citizens residing in the territory of India or any part thereof having a distinct language, script or culture of its own shall have the right to conserve the same. (2) No citizen shall be denied admission into any educational institution maintained by the State or receiving aid out of State funds on grounds only of religion, race, caste, language or any of them."

Constitution of India, Art. 30: the Article relating to "Right of minorities to establish and administer educational institutions". It reads: "(1) All minorities, whether based on religion or language shall have the right to establish and administer educational institutions of their choice. (2) The State shall not, in granting aid to educational institutions, discriminate against any educational institution on the ground that it is under the management of a minority, whether based on religion or language."

Constitution of India, Art. 45: the Article relating to "Provision for free and compulsory education for children". It reads: "The State shall endeavour to provide, within a period of 10 years from the commencement of this Constitution, for free and compulsory education for all children until they complete the age of 14 years." It is one of the directive principles of State policy "fundamental in the governance of the country and it shall be the duty of the State to apply these principles in making laws."

Constitution of India, Art. 46: the Article relating to "Promotion of educational and economic interests of Scheduled Castes, Scheduled Tribes and other weaker sections". It reads: "The State shall promote with special care the educational and economic interests of the weaker sections of the people, and, in particular, of the Scheduled Castes and the Scheduled Tribes, and shall protect them from social injustice and all forms of exploitation." It is one of the directive principles of State policy.

Constitution of India Art. 337: the Article relating to "Special Provision with respect to educational grants for the benefit of Anglo-Indian Community." It reads: "During the first three financial years after the commencement of this Constitution, the same grants, if any, shall be made by the Union and by each State for the benefit of the Anglo-Indian community in respect of education as were made in the financial year ending on the 31st day of March, 1948. During every succeeding period of three years, the grants may be less by 10% than those for the immediately preceding period of three years; Provided that at the end of 10 years from the commencement of this Constitution, such grants to the extent to which they are a special concession to the Anglo-Indian community, shall cease: Provided further that no educational institution shall be entitled to receive any grant under this Article unless at least 40% of the annual admissions therein are made available to members of communities other than the Anglo-Indian community."

Constitution of India, Art. 350-A: the Article relating to "Facilities for instruction in mother-tongue at primary stage". It reads: "It shall be the endeavour of every State and of every local authority within the State to provide adequate facilities for instruction in the mother-tongue at the primary stage of education to children belonging to linguistic minority groups; and the President may issue such directions to any State as he considers necessary or proper for securing the provision of such facilities."

Constitution of India, Art. 351: the Article relating to "Directive for development of the Hindi language". It reads: "It shall be the duty of the Union to promote the spread of the Hindi language, to develop it so that it may serve as a medium of expression for all the elements of the composite culture of India and to secure its enrichment by assimilating without interfering

with its genius, the forms, style and expressions, used in Hindustani and in the other languages of India specified in the Eighth Schedule, and by drawing, wherever necessary and desirable, for its vocabulary, primarily on Sanskrit and secondarily on other languages."

Constitution of India, education a State subject in the : education was made a State subject according to entry 11 of 'List II—State List' of the Seventh Schedule to the Constitution. The entry 11 reads : '11. Education including universities, subject to the provision of entries 63, 64, 65, and 66 of List I and entry 25 of List III.'

Constitution of India, entry 63 of List I : the entry of List I—Union List relating to education for which Parliament has exclusive power to make laws. The entry 63 reads : '63. The institutions known at the commencement of this Constitution as the Banaras Hindu University, the Aligarh Muslim University and the Delhi University, and any other institution declared by Parliament by law to be an institution of national importance.'

Constitution of India, entry 64 of List I : the entry of List I—Union List relating to education for which Parliament has exclusive power to make laws. The entry 64 reads : '64. Institutions for scientific or technical education financed by the Government of India wholly or in part and declared by Parliament by law to be institutions of national importance.'

Constitution of India, entry 65 of List I : the entry of List I—Union List relating to education for which Parliament has exclusive power to make laws. The entry 65 reads : '65. Union agencies and institutions for—

(a) professional, vocational or technical training, including the training of police officers ; or (b) the promotion of special studies or research ; or (c) scientific or technical assistance in the investigation or detection of crime.'

Constitution of India, entry 66 of List I : the entry of List I—Union List relating to education for which Parliament has exclusive power to make laws. The entry 66 reads : "66. Co-ordination and determination of standards in institutions for Higher education or research and scientific and technical institutions."

Constitution of India, entry 11 of List II : see 'Constitution of India, education a State subject'.

Constitution of India, entry 20 of List III : the entry of List III—Concurrent List relating to economic and social planning which is a concurrent responsibility of the Centre and the States. The entry 20 reads : '20. Economic and social planning.' The Government of India and the State governments have to work jointly

in preparing and implementing national plans for education, as educational planning is an integral part of economic and social planning.

Constitution of India, entry 25 of List III : the entry of List III—Concurrent List relating to education for which Parliament and the Legislature of any State (subject to certain provisions) have power to make laws. The entry 25 reads : '25. Vocational and Technical Training of Labour.'

Constitution of India, Preamble : The preamble has a great bearing on educational policies and programmes. It reads : "We, the people of India, having solemnly resolved to constitute India into a Sovereign Democratic Republic and to secure to all its citizens : Justice, social, economic and political ; Liberty of thought, expression, belief, faith and worship ; Equality of status and of opportunity ; and to promote among them all Fraternity assuring the dignity of the individual and the unity of the nation ; In our Constituent Assembly this twenty-sixth day of November, 1949, do hereby adopt, enact and give to ourselves this constitution."

content analysis : discovering and listing the ideas, feelings, and personal references in a communication according to a systematic plan. The method has been used to describe culture by analysing the specified elements that occur in books, movies and other communications within the culture.

content subjects : fields for study or school subjects in which the chief aim consists mainly in the acquisition of information in contrast with skill subjects. Subjects like history, civics and geography come under this category.

contextual method : a method of teaching the meaning of a new word by using it in various sentences or language settings so that each sentence or context will help to bring out the meaning of the new word. The contextual method also tests the child's mastery of using the word in various contexts. It is distinguished from 'definition' or 'dictionary' method.

continuation school : a part-time school for young workers desirous of continuing their education even though they are employed.

continuing education : facilities of further study and training extended by special schools or colleges to the young persons and adults who have left full-time school or college.

continuous series : a series capable of changing by infinitesimal increments and infinite subdivisions in contrast to discrete series.

contract, teacher's : a formal written agreement between the teacher and the employer which makes mention of the terms of contract, salary,

general duties and the length of the term of contract.

contract education : the educational contract as conceived by Mrs. Helen Parkhurst in the early nineteen twenties at Dalton, Massachusetts set forth a definite amount of reading, exercises and written work to be done by the student in a specified amount of time. This implies an arrangement between the pupil and the teacher in which the pupil agrees to accept increased responsibility for his learning.

contract plan : a plan of instruction, as in the Dalton plan, adapted to individual differences. The whole course is divided into units of assignments, usually one for each month. Each student receives the unit of assignment, designated as contract, and proceeds at his own rate, and receives the next contract after completing the previous one.

control group : the group in an experiment which is similar in every respect to the experimental group except that it does not include the experimental variable.

controls of conduct : customs, social codes, conventions, rules and influence of authorities that direct individual or group conduct.

controversy, Oriental-Occidental : see 'Oriental-Occidental controversy'.

convent : popularly but incorrectly the term is used for convent school. In fact, convent is a building where a community nuns live and work.

convent school : a school run by a convent where sisters work as teachers. The school is meant for girls except in lower grades where boys may be admitted.

conversation : an informal language activity in which topics keep on changing and students feel at ease. The term is distinguishable from the word discussion which adheres to a topic and tries to reach a decision.

conversational method : a method of teaching through conversation, a more natural and sociable manner of teaching in contrast to the old question and answer method of teaching. This method is specially effective in developing the skill of speaking in a foreign language class.

conversation period : see 'period conversation'.

convex learning curve : a learning curve in which the former portion indicates a faster rate of learning than the rate indicated in the later portion. This gives a convex shape to the curve.

convocation address in ancient India : subject matter of a convocation address or farewell address to Arts Graduates is indicated below as based on a passage appearing in *Taittiriya Upanishad* : Speak the truth. Do your duty. Do not miss opportunities of becoming great.

Do not neglect your duties of learning and teaching the Veda. Let your mother, father, teacher, and guest be to you like unto a God. Whatever good works have been performed by us, only those should be emulated by you and not others. If there should be any doubt with regard to any duty or conduct, in that case conduct yourself as *Brahmanas* who possess good judgment. Thus conduct yourself. This is the rule and the teaching. This is the true meaning of the Veda. This is the command.

co-operative, school : a student organized activity concerning the purchase and sale of books, stationery and other supplies required by the students. The students purchase the supplies almost at the cost price and share the profits among themselves.

co-operative planning : a method of organizing activities on democratic principles, in which everybody has a voice in formulating policies or arriving at decisions.

co-operative school : a school in which students study half the time, and work half the time on a job in the locality. Generally students work alternately in pairs, one working full time on the job for a fixed duration and the other regularly studying during that period, at the end of which both change their places.

co-operative supervision : see 'supervision, co-operative'.

co-ordination, horizontal : co-ordination of plan, programme or activities between educational institutions at, or authorities for the same level of education.

co-ordination, vertical : co-ordination of plan, programme or activities between different levels of authority in a hierarchy, for instance, between Central and State ministries of education or between education officers of different levels.

co-ordinator : an officer for the promotion of extension services in schools. He co-ordinates and organizes extension programmes and serves as a link between training institutions and schools.

core culture : that part of the total culture of a society which is shared by all the members of the society.

core curriculum : that part of the curriculum which is required of all students. In another context, the term is used to denote a broad teacher-student planned adolescent-problems approach in general education without having any subject-matter boundaries. The term is variously used lending itself to different interpretations in different contexts.

core subjects : subjects which are considered basic and, therefore, constitute the compulsory

part of a group of subjects to be offered by a student. General science, mathematics, social studies and languages usually form core subjects at the higher secondary level.

corporal punishment : any punishment applied to the body and producing physical pain. The earliest sketch of a school in Greek Literature (250 B.C.) portrays an Alexandrian school-master flogging a boy, hoisted on the backs of three others, with a leather strap. In ancient India rules were prescribed regarding the mode of punishment within safe limits. Quintilian in his 'Institute of Rhetoric' (A.D. 80) was the first European writer on education to disapprove of corporal punishment. The value of punishment for helping a person to improve his behaviour will remain debatable, but the modern trend is against any correction that involves infliction of bodily pain.

corporal punishment in ancient Indian education : teacher's right to punish his students for correction had always been emphasized. Manu justifies corporal punishment and directs that a pupil may be corrected for his faults with a rope or the small shoot of a cane on the back part of his body and not on any other part by any other means. Gautama also lays down that only a small rope or shoot of a cane should be used to correct a pupil for ignorance or incapacity.

correction : any action that corrects a mistake ; helping a person to correct or modify his behaviour according to approved standards ; an adjustment used in computing the arithmetic mean, standard deviation and correlation coefficient by the short method.

correction for chance : a practice to deduct from the scores obtained in some types of objective tests to take account for chance or guessing.

corrective arithmetic : see 'arithmetic corrective'.

corrective teaching : steps taken to remove observed defects or difficulties in pupil's learning.

correlation (curriculum) : it is helping the students to see the interrelationship between things taught in different subjects. Correlation makes the lesson more meaningful and interesting. It reinforces the knowledge of the students by providing them a wider perspective. It stresses the unity of knowledge which cannot be subjected to water-tight compartments in the name of different subjects. Biographical sketches in a language lesson can be correlated with the relevant periods in history. In a wider sense, correlation is applicable within the content of a subject, or among the different subjects, or between the school work and life outside. Basic Education which centres round some form of

productive work ensures correlation not only with craft but also with physical and social environment.

correlation (statistics) : the relationship between two sets of traits, qualities or measurements. The coefficient of correlation is a numerical amount ranging from -1.00 through 0 to $+1.00$, that indicates the nature of the relationship or correspondence and also the degrees to which the traits, qualities, etc., go together. Co-efficient of correlation may be used to predict standings in one function from the known standing in another function when these two are correlated. If co-efficient of correlation between the children's scores in English and scores in Arithmetic is high, it may mean that a student good in English will also be good in Arithmetic, but it does not imply that the success in one is the cause for the success in the other. The cause may be some common factor like intelligence or hard work which has been responsible for good marks in both the subjects.

correspondence teaching : teaching through correspondence courses is a method of taking education to the million who depend upon their own effort to study as and when they find time. Correspondence teaching had its inception in the United States about 1883. U.S.A., U.S.S.R., Sweden, Japan, Australia are extensively using such courses with great success. In India, particularly in Delhi, the experience has been rewarding. The paucity of inspiring teachers in many indifferent and over-crowded schools and colleges, the method of establishing personal relationship through the correspondence of properly guided lessons and assignments and supervised written work, occasional arrangements for special lectures and seminars, programmed learning, and well co-ordinated radio and television programmes support the educational value of correspondence courses. Besides helping the students to obtain a degree the method is used to help workers in industries, and agriculture to improve production and other persons who desire to enrich their lives by studying subjects of cultural and aesthetic value.

cost, educational : the money charged or paid for a certain education service.

cost, student : the average amount of money spent per student for a particular educational service during a given time.

cost-benefit approach to educational planning : an approach which works out the costs of various types of education and compares them with the returns, both to the individual and to the society. It considers expenditure on education as a form of investment and justifies it

on the basis of higher earnings and productivity of people so educated. The calculations guide the planner about the sectors which shall be developed for maximum returns.

costs, instructional : the total amount of money spent on all items directly concerned with teaching, like the salary of teachers and supervisory staff, purchase of instructional material, etc.

costume, academic : see 'academic costume'.

Council of Public Instruction (Can.) : the name given to the central provincial educational authority in Nova Scotia and British Columbia. The provincial educational authority is variously designated in different provinces ; it is known a *council of education* in Quebec, *department of education* in Manitoba, Alberta, Ontario and Saskatchewan, *board of education* in New Brunswick and Prince Edward.

Council of Scientific and Industrial Research (Ind.) : [usually abbreviated to C. S. I. R.] a council set up in 1942 as an autonomous organization for the promotion, guidance and co-ordination of scientific and industrial research, including the financing of specific researches. The Council is administered by the Governing Body whose President is the Prime Minister and Vice President the Union Minister of Education. The research work under the Council is carried on in its own laboratories, generally known as National Research Laboratories. The names of some of the 26 laboratories are : National Chemical Laboratory, Poona ; National Physical Laboratory, New Delhi ; National Aeronautical Laboratory, Bangalore ; National Metallurgical Laboratory, Jamshedpur ; Central Drug Research Institute, Lucknow ; Central Mining Research Station, Dhanbad.

counsellor : a student who is being assisted by means of counselling.

counselling : individualised assistance given by the counsellor to the student to assist him achieve the optimum adjustment he is capable of. The term covers a large number of procedures like personal interviews, interpretation of test scores and through referral to personnel specialists for professional and personal assistance.

counselling, directive : see 'directive counselling'.

counselling, eclectic : see 'eclectic counselling'.

counselling, vocational : see 'vocational counselling'.

counselling interview : an interview in which the counsellor assists the counsellor to understand himself better and improve self-responsibility for making effective social adjustment.

counselling service : service provided by the school counsellor who makes a comprehensive

study of the whole child from all available data such as school marks, tests and anecdotal records.

counsellor : a professionally trained person who assists individual students to make adjustments and choices especially relating to educational, vocational and personal matters.

counsellor, school : see 'school counsellor'.

counsellor, student : a senior student who helps in the counselling programme of the school.

counsellor, teacher : see 'teacher counsellor'.

counsellor, visiting : see 'visiting counsellor'.

county school (Brit.) : a term used to denote a school provided and wholly maintained by a Local Education Authority.

course of study : an official guide for teachers and supervisors regarding the teaching of a given subject for a given class. It includes the aims of the course, the expected outcomes, the scope of the contents and makes mention of suggested aids, supplementary reading, activities, teaching methods and evaluation.

course preparation (U.S.A.) : preparation outside of class usually consisting of reading, writing essays or reports, and working on projects or term papers. On an average a student has to spend 2 hours of preparations for each hour in class. Thus the work load of a student attending class 15 or 16 hours each week includes 30 to 40 hours of class preparation.

crafts : subjects involving creative and productive activities accomplished by hand ; sometimes with the aid of simple tools or machines.

craftwork : anything produced or made by the help of hands ; participation in such a work.

creative art : see 'art, creative'.

creative education : education that provides opportunity for creative activity and self-expression towards promotion of learning.

creative experience : see 'experience, creative'.

creative story : a story spontaneously narrated by a child building upon his own imagination and experiences.

creative thinking : see 'thinking, creative'.

credit hour (U.S.A.) : a unit for measuring the work done by a student. Usually one credit hour would represent one hour's instruction per week of 5 days in a given subject for a given number of weeks. Semester credit hours would mean about 18 weeks of instruction.

credits, school (U.S.A.) : a way of measuring school work completed by a student. A unit of credit in a secondary school may mean studying one subject for a year, one hour daily for 5 days a week.

CREDO : see 'Centre for Curriculum Renewal, and Educational Development Overseas'.

cretin : a mentally retarded child whose retardation is due to the deficiency of the secretin given off by the thyroid gland.

criterion : a norm, a standard, a rule or judgment selected as a basis for making comparison, qualitative as well as quantitative. It is an external basis for judgment.

critical ratio : a statistical quantity to determine whether the difference between two quantities is significant, the difference of two comparable statistics divided by the standard error of that difference.

critical thinking : see 'thinking, critical'.

criticism lesson : a lesson given to a class by a pupil-teacher in the presence of a supervisor or tutor who afterwards discusses the teaching technique of the lesson with him.

critic teacher : a teacher having the responsibility of supervising a pupil-teacher. The term is getting replaced by the term 'supervising teacher'.

cross-culture method : a method for making comparative studies of different cultures by assigning each society a score on each of a number of selected cultural dimensions. The patterns of the scores of the various societies are then compared to find out similarities and differences.

crosshatch map : see 'map, crosshatch'.

Cross Report (Brit.) : a report of the Royal Commission appointed under the chairmanship of Lord Cross to inquire into the working of the Elementary Education Acts, England and Wales. Owing to divergent views the Commissioners were divided into a majority and a minority, 8 of the 23 members eventually writing a minority report. The final report including the minority report was published in 1888.

Crowther Report (Brit.) : a report of the Minister of Education's Central Advisory Council for England under the chairmanship of Sir Geoffrey Crowther, published in 1959, dealing with the education of boys and girls between the ages of 15 and 18. The report was entitled '15 to 18'. It recommended that the school-leaving age should be raised to 16 by the introduction of County Colleges and compulsory continued part-time education. It advocated 'education in depth' (specialization) but not excessive and premature specialization. It introduced the concept of numeracy, i.e., a general understanding of scientific method and language for arts students. It stressed the need for more technical education and educational research.

cue : see 'clue'.

cultural beliefs : all the cognitions—ideas, knowledge, love, myths, legends and superstitions—

shared by the members of a society.

cultural education : education that stresses the human, and classical values of literature, art, science and history. It is not strictly practical or vocational in nature, but aims at enlightenment and refinement of human beings and transmission of culture from one generation to the other. The advocates of cultural education agree that education should not merely prepare for earning a livelihood.

cultural norms : standards specifying appropriate and inappropriate behaviour in standard behaviour situations.

cultural premises : tacit assumptions and beliefs of members of a society about the nature of persons, objects and events in their world.

culture : all the manifestations of social habits of a community and all human activities as determined by these habits. It implies the mental pattern of thinking of a community as reflected in the life and work of its members. Culture includes all the institutionalised ways, cultural beliefs, norms, values and premises which underlie and govern conduct.

culture-epoch theory : a theory pointing out the parallelism between the development of the individual and of mankind itself. As such the material of instruction at each stage of the growth of the child should be drawn from the culture products of the corresponding stage of human history.

culture pattern : an integrated group of culture traits which is reflected in a set pattern of thinking, living, working and collection of material objects of a people or community.

cumulative frequency : the sum of all the frequencies in a frequency distribution up to any given point or score.

cumulative frequency graph : see 'ogive'.

cumulative percentage curve : see 'ogive'.

cumulative record card : a comprehensive cumulative record of pupil's background, ability and behaviour entered on a card. Charles Lamprey Principal of the Model School in Boston was the first person to devise and use such a card in 1908. The card was called "admission, discharge, and promotion card". It contained a minimum amount of data.

cup-and-eube behaviour : see 'behaviour, cup-and-eube'.

cup-and-spoon behaviour : see 'behaviour, cup-and-spoon'.

curiosity : a tendency to prefer or to respond to new and novel stimulation.

curiosity want : the impelling urge to explore and investigate one's environment ; or to strive after knowledge.

curriculum : the total learning activities or educative experiences offered by an institution through its total institutional programme designed to achieve the prescribed objectives. It may also mean a systematic group of courses, or an over-all plan of the content of instruction required for completion in a school year, or school stage, or for certification or graduation. The earlier view of curriculum in terms of classroom programmes alone is now abandoned.

curriculum, child-centred : a curriculum in which the selection and arrangement of material, activities and experiences for any pupil are based on the needs, interests, knowledge and experience of that individual child.

curriculum, community-centred : a curriculum based on the needs, interests, activities, resources, and culture of a community which the school serves.

curriculum, experience : see 'experience curriculum'.

curriculum, research : see 'research curriculum'.

curriculum, development : the systematic development of a suitable curriculum for a school or school system which would involve the setting up of working committees under experts, the definition of the general and specific aims of instruction, the selection of curricular materials, the preparation of courses of study, the methods of instruction and evaluation, the provision for continuous evaluation and improvement of such an educational programme.

cursive writing : see 'writing, cursive'.

Curtis Report (Brit.) : a report of a special committee appointed in 1945 under the chair-

manship of Dame Myra Curtis, dealing with the upbringing of children deprived of a normal home life and measures to compensate them for the lack of parental care. As an outcome of this report, a Children Act was passed in 1948 which set up two Advisory Councils for Child Care, one for England and Wales and the other for Scotland.

curve, bell-shaped : a curve shaped like a bell as in the case of a normal frequency curve having the highest frequency in the middle with symmetrical and gradual tapering at both the ends. It is also called Gauss' curve.

curve, concave learning : see 'concave learning curve'.

curve, convex learning : see 'convex learning curve'.

curve, cumulative percentage : see 'cumulative percentage curve'.

curve, learning : see 'learning curve'.

curve, smooth : a curve like a frequency curve which slopes gradually and does not change in an erratic manner.

Curzon's contribution to education (Ind.) : under the viceroyalty of Lord Curzon (1898—1905) there was an unprecedented expansion and reform in the field of education. The notable features of the period were : the Indian Universities Commission (1902), the Indian Universities Act, 1904, and Government Resolution on Educational Policy in 1904. He created the post of a Director-General of Education in India, created the Department of Archaeology, started a drive for expansion in primary education and gave a tremendous impetus to agricultural education.

D

daily schedule : see 'schedule, daily'.

Dalton plan : a plan introduced about 1920 by Helen Parkhurst in the school system of Dalton. The plan is a departure from the daily assignment to the consideration of a large topic or problem. After completing a particular problem, the student may undertake another problem. There are no bells announcing periods. Every pupil has his own graph of his progress and he knows how far he has gone in each subject covered.

dame school : a kind of private primary school run by women, sometimes in their homes, for teaching children to read and spell before they

joined a regular school. The dame schools in England may have been in existence before the Reformation but they became popular in the early 18th century and plentiful in Elizabethan times. The idea came to America during the time of colonization.

dance styles, Indian : see 'Bharat-nāṭyam', 'Kathak', 'Kathakali' and 'Manipuri'.

dancing-master education : a term used for the education of the children of the nobility connected with the drawing-room life of the court of Louis XIV. Rousseau condemned such an artificial training which deprived the children of a natural development.

Danish Mission in Madras (Ind.): [1706-92] Ziegenbalg and Plustschu were the most important Danish missionaries who did considerable missionary and educational work in India. They set up a printing press in Tamil in 1713, opened an institution for training teachers in 1716, opened two charity schools in 1717 in Madras. Grundler Kiernander and Schwartz were the other important missionaries who founded many schools.

Dara Shikoh's interest in education (Ind.): Dara Shikoh, the son of Emperor Shahjahan, was a scholar who mastered both Arabic and Persian and was proficient in Sanskrit. His great interest for the institutions of the Hindus caused him to collect learned men from all parts of the country to translate the Vedas. He was a voluminous writer and he himself translated some of the best Sanskrit works into Persian, like Upanishad, Bhagvadgita, Jog Vashishtha, Ramayana. He was also the author of several works on Sufism.

dark adaptation: the increase in sensitivity of the eye that takes place when the eye remains in the dark.

Darul-Uloom (Ind.): an institution founded at Deoband in 1864 to revive Muslim ideals in education. It is regarded as the fourth Muslim university of the world, the others being Jamia Azhar, Jamia Zetuna and Jamia Tunis. It is a residential university attracting students from all parts of the Islamic world and imparting education in Arabic, Persian, Tabligh (missionary work), Tajveid (recitation of the Holy Quran) and Tybb (Unani medicine). It awards 'Fazil' degree and the graduates call themselves 'Deobandi'.

Darul-Uloom Nadwatul Ulema (Ind.): an institution founded at Lucknow in 1898 whose ideological position is between an institution where old traditions are revered, like that of Deoband, and a modern university, like Aligarh. It attracts students from all parts of the Islamic world and the graduates of this institution call themselves 'Nadvi'.

Darwinism: the theory propounded by Darwin that all living forms have evolved through natural selection. The term is also used for an evolutionary point of view.

Dasa Granthas (Ind.): (lit., ten books). These were: the *Veda*, its *Brāhmana*, its *Aranyaka*, *Nighantu*, and the six *Vedangas*. A *Dasa Granthi Brāhmana* was one who had mastered all these books.

data: a collective mass of quantities, facts or records used as a basis for drawing conclusions or making inferences (the plural of datum).

data continuous: observed values of a continuous variable that may take any values between the lower and the upper limits of the variable.

data discrete: observed values of a discrete variable; observations of a variable that may take only certain variate values and no intermediate values.

data psychological: see 'psychological data'.

data analysis: statistical treatment of data which enables us to draw conclusions and inferences.

Davis-Eells test: a test designed to measure general intelligence or problem solving ability. All the exercises consist of pictures to be checked. The test considers mental capacity as synonymous with problem-solving ability.

Dawn Society, the (1902-1904) (Ind.): a society aimed at supplementing the admitted deficiencies of the system of University education by imparting religious and moral instruction. It sought to train up the students as patriots and workers.

day open: see 'open day'.

day dreaming: the act of withdrawing into the imaginative world, or realm of fancy, usually to provide a more pleasant world than the real one. It is a reverie or fantasy. An inappropriate curriculum, dull teaching, lack of opportunity for reasonable amount of self assertion may give rise to day dreaming as a form of compensation. Day dreaming may transform into creative imagination in art, music and literature. It may also help to reduce emotional tension. It is serious when day dreaming is used excessively without any real achievement.

day nursery: a place which provides physical care to the children when their mothers leave them during the day while they are away at work.

day release (Brit.): a system in which a young worker is allowed to be absent from his job one day in each week by his employer in order to attend a course of training in a technical college.

day school: the normal type of school attended by students who live at home as distinguished from a boarding school.

deaf-mute: a person who is unable to hear and consequently unable to talk. However, such a person can be taught how to talk.

deafness, functional: psychic deafness, hysterical deafness. It is caused when the sense organ or its neural connections do not function. 'Organic deafness' occurs as a result of structural defect in the sensory apparatus. 'Tone deafness' is inability to recognize

differences in pitch, though the sounds are audible.

dean of boys (U.S.A.) : a male teacher responsible for the guidance of the boys in their environmental adjustments ; sometimes having additional administrative duties.

dean of girls (U.S.A.) : a woman teacher responsible for the guidance of the girls in their environmental adjustments ; sometimes having additional administrative duties.

Dearborn, Shaw and Lincoln Scale : a scale comprising ten tests designed by W.F. Dearborn, E.A. Shaw, and F.A. Lincoln to measure performance.

debating : in a debate arguments on both sides of a question are presented in a formal manner before an audience. In educational institutions the debating is conducted by two teams, speakers of one team speaking for the proposition and speakers of the other against the proposition. Speakers of opposing team alternately present their speeches. The classical tradition of debating comes from the days of ancient Greece and Rome, but today the formal debating is giving place to many new patterns of educational value. The debates in the 'School Mock Parliament' follow parliamentary procedures and help in the training of citizenship. In a 'heckling' type of a debate the audience is allowed to ask questions to the speaker. Some schools use panel discussion in place of formal debates.

decentralized administration : see 'administration, decentralized'.

decile : one of the nine points that divide a frequency distribution into ten parts of equal frequency, each containing one-tenth of all the cases.

decomposition method : also called borrow method, a method of subtraction when the subtracted figure is greater than the corresponding minuend figure ; as in the case of 34-18 where 8 is more than 4. 34 is read as 20+14, and then 8 is subtracted from 14 and 1 from 2.

deductive learning : a method of study or research or argument or teaching in which we proceed from the general conclusions to the particular and from the whole to its parts.

Deepak-raga (Ind.) : a *rāga* (a class of modal melodies) to be sung in a summer afternoon. It is believed to have the power to produce heat and arouse passion. It is suitable to be performed in the afternoon.

defence : a psychological process for automatically protecting the self or ego of a person against unpleasantness, shame or loss of prestige. The defence works automatically,

mostly without the person's intention or knowledge. The process is sometimes termed as rationalization, over-compensation, symbolization, projection, repression.

defence mechanism : a psychological process practised by those making poor adjustments in order to avoid awareness of the unpleasant, and shameful facts or those that lower self-esteem.

defence reflex : see 'reflex defence'.

deficiency, mental : see 'mental deficiency'.

deficit grant : a grant which a higher authority agrees to pay with the purpose of meeting the deficit in the expenditure incurred by an institution or an authority at a lower level.

Delhi University (Ind.) : a teaching and federating university founded in 1922. This is one of the four Central Universities. It has eight faculties i.e. arts, science, education, law, medical sciences, music and fine arts, social sciences and technology. In August 1968, the university had 48,968 regular students on its rolls in addition to 11,097 registered with the school of correspondence course. There were 1,960 non-collegiate women students on the rolls of Non-Collegiate Women's Education Board, 149 in B. Ed. correspondence course in the Central Institute of Education making up a total of 62,174. Of these, women students constituted 38.2 per cent.

delinquent child : a boy or girl whose behaviour is not in conformity with the standards of society. He may be an offender against school discipline, moral code or law. The term 'Juvenile delinquent' is used for a child usually (under 16 or 18 years according to the law of the State) whose anti-social behaviour or minor violation of legal or moral codes has attracted the attention of the Juvenile Court. Bad environmental influence and personal factors are responsible for making the children delinquent. Delinquents are generally emotionally unstable and immature. When the home, school and community fail to offer them opportunities for satisfying their needs for status, success, affection and a feeling of worthwhileness, they become so unhappy and frustrated that they find outlet in delinquent and anti-social behaviour.

deliverance, methods for (Ind.) : Different systems of philosophy have given their own interpretations and suggestions regarding the methods for deliverance from pain, suffering and limitations of life. In the older Vedic conception Deliverance is possible through the use of the right *mantras* and the right offerings. Sāṅkhya's '*Prakṛti-Puruṣa-Vivek*

is the discrimination between matter and spirit ; Vedānta's '*Ātma Jñān*' is self-realization ; Patanjali's '*Aṣṭāṅga Yoga*' is union through eight limbs of Yoga ; Shaiva's and Shākta's '*Shaktipat*' is transmission of power through initiation ; Vaishnava's '*Prapatti*' is self-surrender to God through questionless intense devotion ; Jaina's '*Samyak Darshan*, '*Samyak Jñān*, '*Samyak Charitra*' is right sight, right knowledge and right conduct ; Buddhist's '*Shīla*, '*Samādhi*, '*Prajña*' is good conduct, trances and intuition.

delusion : a groundless, irrational and false belief or thought that cannot be corrected by logical evidence. It is a characteristic of an abnormal phenomenon, even though a normal individual may hold it.

democracy, education for : see 'education for democracy'.

democracy in education : democracy is a way of living which stresses the dignity of the individual and ensures the conduct of social relationship in an atmosphere of understanding, co-operation, mutual respect, and fair play. The democratic quality of education enlarges the voluntary participation in co-operative undertakings. It is only when the child shares in the larger life of a group or community and participates in common concerns and purposes that life becomes meaningful. Democracy in education has helped to subordinate curriculum, school programme and administrative procedures to the needs of the pupils, to pay attention to the individual differences and to stress the equalization of educational opportunities.

democratic leadership : a type of leadership in which the leader shares the functions of leadership with the members of the group by encouraging their involvement in goal setting and in planning and directing the activities of the group. Democratic leadership in the field of education implies furnishing a stimulating environment, discovering the unique contribution that an individual is capable of, encouraging and promoting the potential powers of creativeness in colleagues, and includes the improvement of every phase of the educational programme. Democratic leadership makes the teachers feel that the leader is his friend and is there to help him and his pupils.

democratization of education : extending educational opportunities to all and providing personalized attention to each individual.

demography : scientific study of human populations, primarily concerned with their

structure and their development. A Frenchman, A. Guillard, was probably the first man to use this in his textbook '*Elements de Statistique Humaine*'.

demonstration-lecture method : a method of oral presentation illustrated with demonstration or experiment.

demonstration method : one of the objective methods of presentation in which the teacher himself conducts the experiment, examination, dissection, etc. before the class. The method is used to illustrate a theoretical discussion, or to guide the students in their laboratory work in which each student conducts the work himself, or to use as a substitute for laboratory method when the latter is not feasible.

demonstration school : a school which carries out learning activities for demonstrating new methods or techniques evolved in a training institution, which more or less uses it as a laboratory for educational experiments.

demonstration teaching : teaching situations planned and conducted particularly for the benefit of prospective teachers who are receiving their professional training although demonstration teaching may also be used as a means of in-service education for teachers.

departmental supervision : see 'supervision, departmental'.

dependency need : the need to depend on other people for advice, counsel and moral support.

dependent variable : a variable that changes as a result of changes in one or more variables.

depth interview : an interview by a counsellor to study and understand the pattern and background of a counsellee's motivation in the form of anxieties, frustrations, fears, motives, values, sentiments, prejudices, attitudes, etc. It generally requires a series of interviews.

depth psychology : see 'psychology, depth'.

derived score : a score derived from another score or scores when they are converted to some system of comparable measures.

descriptive rating scale : see 'rating scale, descriptive'.

Despatch, Wood's (1854) (Ind.) : see 'Wood's Despatch (1854)'.

detention hall : classroom where students are detained for a short period after school as a means of punishment for failure in school work or some other kind of lapses. Owing to the increased appreciation of fresh air and recreation as factors in the health of children, detentions are becoming infrequent. It is also realized that imposition of school work in

any subject during the detention period tends to create a hostility towards that subject.

detention home: a building with somewhat homelike environment for the stay of those children who have to wait for some time for a hearing in the Juvenile Court.

determinism: In the second decade of the 20th century many psychologists believed that mental abilities are purely innate and environmental influences cannot change them. Time and research have greatly modified the assumption and have relieved the educators from much embarrassment. In popular usage the term implies that human will is controlled and the individual has no choice.

determinism, environmental: an assumption that physical and social environment mostly determine human behaviour.

deterrent punishment: a form of punishment wherein the object is to deter others from doing the same offence.

Detroit plan: the plan of grouping children through intelligence test on their first admission, as is used in Detroit school system, where three groups are formed: *x*-group containing the top 20% having the highest intelligence, *y*-group containing the middle 60%, and *z*-group including 20% of the children with the lowest intelligence.

Devanagari (Ind.): [lit., the script of the divine city] the current form of the alphabet in which Sanskrit and Hindi are written. It is also called Nāgari. The earliest samples of *Devanāgarī* are found, though in a crude form, in the Ghosundi and Ayodhyā stone inscriptions dating from about 100 A.D. The oldest manuscript written in *Devanāgarī* is found in the eleventh century. The script continued to evolve even after 8th century when it was considered to have been standardized. Marathi, Rajasthani, Marwari, and Mahajani are variants of *Devanāgarī*. Specific local variations resulted in the development of individual scripts in the Punjab, Gujarat, Orissa and Bengal.

development: change in character and quality accompanying growth. In psychology emphasis is placed on physical, mental, emotional and social development. Originally development had a qualitative implication and growth a quantitative one. Now the term development includes growth, and both are used synonymously.

development, educational: see 'educational development'.

development, language: growth in the ability

of the individual or the race to successfully communicate by means of vocal or written symbols.

development, levels of: division of life span in terms of age. The divisions, though arbitrary, have a general acceptance for convenience of reference. Infancy (up to 1 year), early childhood (1—6), mid-childhood (6—10), late childhood (10—12), early adolescence (12—14), mid-adolescence (14—16), late adolescence (16—21), maturity (21 onwards). Some psychologists have their own limits.

development expenditure (Ind.): expenditure related to schemes of development provided in a Five-Year Plan. The development expenditure of one Plan becomes part of the non-plan expenditure in the subsequent plan.

development method: a method in which the pupil acquires most of the desired knowledge through his own activity and efforts rather than through the statement of teachers.

deviate: one who differs markedly from the normal or average, whether physically, mentally, socially or emotionally. His behaviour or attitudes are not in accordance with the prevailing moral standard of the group. A feeble minded or one of exceptional talents may be classified as a deviate.

deviation: the spread or departure of the measures of distribution from a straight line or more generally from any point under reference. Deviation is usually with reference to a measure of central tendency such as mean or median. Commonly used measures of deviation are, average deviation, standard deviation and quartile deviation.

deviation, quartile: see 'quartile deviation'.

deviation, standard: see 'standard deviation'.

Devonshire Report (Brit.): a report (1875) of the Royal Commission appointed under the chairmanship of William Cavendish, Duke of Devonshire to inquire with regard to scientific instruction and the advancement of science. The report published in 1875 recommended that older children in elementary schools should have more science teaching than what was encouraged and the teachers should be provided with the necessary preparation for this.

devotion [bhakti] (Ind.): see 'bhakti'.

dhanurveda (Ind.): [lit., archery] one of the auxiliary sciences mentioned in the Yajurveda. Proficiency in dhanurveda was an essential requirement for kings.

dharma (Ind.): norm of conduct; duty; religion. It has various connotations. For Ashoka it was a synonym for righteousness. In Hinduism

the term implied a common *Dharma*, a general norm of conduct for all, and a *dharma* appropriate to each stage of life and each class of individual. In Buddhism, it implies the doctrine that the Buddha had preached as leading to *Nirvāna*. In short, it is a prescribed way of life, it is a duty to oneself. It is also taken to mean the upholding of outside social rules connected with numerous religious ceremonies. The term is also used for the word 'religion'.

Dharmashastra period, education during the (Ind.) : (c. 200 B.C. to 500 A.D.). A systematic discussion of the aims and methods of education was available. It not only encouraged religious and philosophic studies for other worldly goals, but also helped one to earn his living and become a responsible citizen. The *gurukula* system of a large number of students living under the superintendence of a teacher was in vogue. Rules of discipline stressed daily prayers, proper courtesy, good habits and manners, celibacy, plain-living and high thinking. Students were required to live by begging which engendered a sense of humility and gratitude to society. There was monitorial system, brilliant students in charge of junior classes. Memorization, recitation and recapitulation formed an important part of daily routine and aphorismic forms were used to aid memory. Dialogue and discussion methods were used for the complete unravelling of the subject matter, when doubts were raised and properly answered. No new lesson was taught until the old one was mastered and every student progressed at his own rate. The age was of critical reflection and rational outlook. Specialization in different branches had started and values of new discoveries were realized.

dharma (Ind.) : concentration, the second of the three stages of *Yoga* before *Samādhi*. This stage is the beginning of the meditative process when the mind becomes so blank that it remains unaware even of its own blankness.

dhyāna (Ind.) : [lit., meditation] the last mental processes after *pratyāhāra* and *dhārmā*, when one is about to enter *Samādhi*. At the primary stage of *dhyāna* one meditates upon a deity or one's guru, and at a later stage one concentrates in a manner that the unmanifested becomes manifested, a point beyond which is *Samādhi* outside the mental plane.

diagnosis, educational : the procedure of determining the nature and causes of learning difficulties. When the teacher finds that a student is having learning difficulties, he can start making a search for the cause. As a first

step it has to be discovered whether the child is deficient in all the subjects or only in a particular subject; whether he is experiencing difficulty in all the topics in a subject or only in a particular area. The teacher has to be specific to find out the root cause of the difficulty so that remedial work can be planned on the diagnosis so made.

diagnostic test : a test used to locate the nature of disability in performance. The common method is to make the students respond to a number of written exercises. The tests reveal mistakes or errors but generally do not indicate causes. The causes behind the mistakes may be various—carelessness, lack of knowledge, low ability, wrong interpretation. The teacher may well discover and deal with many learning difficulties, but he may not have time or training to cover complex cases which would need the help of psychologists, psychiatrists, physician, or guidance counsellors.

diagonal seating plan : see 'seating plan, diagonal'.

dictation exercise : see 'exercise, dictation'.

dictionary : a book containing a list of the words of some language arranged in a definite order, usually alphabetically, together with explanations of these words. The first dictionary specifically so termed was made by Sir Thomas Elyot in 1538. The Oxford English Dictionary was begun in 1859 and it took 70 years to compile. It runs to 13 volumes; defines 414,825 words. It uses 1,827,306 quotations.

difference significant : the difference between two statistics, computed from separate samples (from a universe) is so great that it may not be reasonably attributed to chance factors i.e. sampling errors or errors of random sampling.

differential aptitude test : [abbreviated to D.A.T.] a term often used to denote a battery of standardized tests that measures separately several aspects of mental ability of high school students especially. It includes tests of verbal, numerical and abstract reasoning; space relation; mechanical reasoning; clerical speed and accuracy; and two language tests. Each aspect or aptitude is scored separately and represented by a separate index of performance.

differential psychology : see 'psychology, differential'.

differential retention : degrees of remembering different types of material, some types of material are forgotten more rapidly than others.

difficult child : child whose behaviour presents difficulties to teachers or parents.

difficulty, visual : see 'visual difficulty'.

digit span : ability to repeat series of numbers by a subject without error after having heard or seen them once, for a specified time.

dimensions of pupil performance : three characteristics to measure pupil performance, viz., amount or rate of work done, its quality or accuracy, and its level of difficulty.

ding-dong theory : Bow-wow theory ; Onomatopoeic theory. It assumes that languages have originated in mimicry or imitation of natural sounds as is indicated in words like hum, buzz, ding-dong, bow-wow.

diorama : a type of model normally designed by the pupils themselves to illustrate some typical scene or series of scenes in the teaching of history or geography.

diploma mill (U.S.A.) : an institution which being profit-minded easily confers educational degrees without caring for the usual academic requirements.

directed observation : personality assessment technique involving observation of certain specific types of behaviour patterns in the subject.

directed thinking : see 'thinking, directed'.

direct grant school (Brit.) : a Grammar School in England which is financially independent of the Local Education Authority and receives monthly grants directly from the Ministry of Education. A substantial percentage of places for pupils are reserved from its Local Education Authority area.

directive counselling : counselling in which the counsellor plays a dominant role in finding the solution of his client's problems. He suggests alternative decisions and plans of action and offers possible interpretation of the client's aptitudes, interests and personality as indicated by various types of tests and data.

directive therapy : a form of therapy in which the therapist plays an active role in discovering causes of conflict and suggesting courses of action as a physician prescribes medicine.

direct method : a method of teaching foreign languages characterized by complete or almost complete use of the foreign tongue from the very beginning of the course, with strict avoidance of the use of student's mother tongue or regional language. It involves much practice in understanding what is spoken and in speaking, reading and writing. In a different context, the term 'direct method of teaching' implies the direct communication of knowledge, judgments, applications, etc., to the pupils as distinguished from the 'indirect method of teaching' in which the pupils are placed in a situation that will stimulate them to acquire the desired knowledge for themselves.

direct oral method : the method that emphasizes the oral language work before reading and writing, and in the case of a foreign language does not allow the use of the mother tongue.

Director of Education : the official designation of the head of the department of education of a State or a union territory of India. The earlier designation was 'Director of Public Instruction' which still continues in some States. In Scotland, the term 'Director of Education' is the official designation for the Chief Education Officer. The 'Chief Education Officer' in England is the chief permanent official of the Secretariat of a Local Education Authority, and is sometimes called the Director of Education. The Director of Education is also the designation of the chief State school officer and executive head of the central educational authority of the States of Ohio and Rhode Island in U.S.A. In other States of U.S.A. the chief State school officer is variously designated as 'Superintendent of Public Instruction', 'Superintendent of Public Schools' and 'Commissioner of Education'.

Director of Public Instruction : see 'Director of Education'.

direct reading technique : the method that emphasizes reading from the very start as a sound practice for learning a language.

direct teaching : see 'teaching, direct'.

disarranged sentence test : see 'test, disarranged sentence'.

discipline : referred to by phrases like 'a moral orderliness', 'a reasonable degree of social conformity', 'control of self', 'state of orderly individual', 'conduct gained through training in self-control', 'habits of obedience to socially approved standards of thought and action'. The difference between the modern concept of discipline and the traditional is less marked in their educational objective than in the source and method of control. For both, the object is orderliness or good order. The older concept implies immediate compliance of teacher's command, the modern stress is on the development of good habits, right attitude and wholesome personality. In the older meaning the control of conduct is imposed from outside, sometimes, by means of force, fear or punishment. In the modern concept of discipline the behaviour is controlled or directed from within the individual who is motivated to behave in an orderly manner through proper guidance, co-operative gesture, wise management, and a sense of worthwhileness.

discipline, formal : see 'formal discipline'.

discipline, mental : see 'mental discipline'.

discrete series : a series which is capable of change only by definite amounts.

discrete variable : a variable that has clearly defined values. It is limited almost to unity and no intermediate values are possible.

discriminative learning : learning to respond positively to one stimulus and differently to another stimulus.

discriminative power : the quality of a test item to discriminate or make distinction between the responses of pupils of different abilities.

discussion : a language activity characterized by formality, adherence to a point or problem and the need of reaching a decision as distinguished from conversation. In debating, both the participating sides are keen to prove their own point of view rather than reach the truth.

disorder, mental : see 'mental disorder'.

disposition : a psychological make up that makes a person respond to certain situations in a certain kind of behaviour ; an enduring emotional attitude ; McDougall defines it as the sum of all innate tendencies.

dissertation thesis : a formal treatise based on research prepared for a doctoral or master's degree.

dissociative reaction : a neurotic disorder which involves repression resulting in the separation of certain aspects of personality and memory which function more or less independently.

distribution frequency : a tabulation showing the number of times a given value or set of values occurs.

disuse, the principle : the law of learning which states that facts, knowledge, information and skills that are not used, reviewed or practised are forgotten.

domestic science : see 'science, domestic'.

dormitory : [derived from the Latin word 'dormitorium', lit., a sleeping place] The name is now applied to communal bedrooms in school and college hostels, etc. Originally it meant sleeping quarters of monks.

dot, map : see 'map dot'.

dotting apparatus : a mechanical aid devised by McDougall to test the subject's speed and accuracy. The test is considered to be more useful for investigations of fatigue than those of intelligence.

double shift school : a school is said to work a double shift when the same school premises are used for two separate sets of pupils e.g. one in the morning and another in the afternoon. This system is resorted to when there is lack of space or excess of numbers.

drama [*rupaka*] (*Ind.*) : see '*rupaka*'.

dramatics : activities involving creation, prepa-

ration and production of plays. In schools it has various dramatic forms like one-act plays, mono-acting, pantomime and puppet shows. Such activities provide pleasure and instruction and have proved of great educational value. Widening of interests, quickening of creative powers, development of appreciative attitude and aesthetic sense, education in co-operative endeavour, rehabilitation of confidence particularly in shy children, improvement in voice and diction, and worthy use of leisure are the major educational benefits. Dramatics is a challenge to the imagination and intelligence of the students.

dramatization : acting out of conceptions that the students are studying ; recasting a story into dramatic form so that it can be acted out. Children understand better when the work of a postman or policeman is imitated. When a story is acted out the children cannot escape its great appeal and vivid impact which adds to understanding and enriches emotional appreciation.

draw-a-man behaviour : see 'behaviour, draw-a-man'.

dream analysis : the chief technique of psychoanalysis. A person relates his dream and freely says whatever comes to his mind about its elements. The sequence of ideas and words and the elements of the dream are then analysed and interpreted to find out the repressed wishes or underlying motivations.

Drever and Collins scale : a scale comprising eight tests designed by J. Drever and M. Collins to measure performance, published in 1928.

drill : systematic repetition for the purpose of learning or improving skill, or gaining accuracy and speed in a work, or eliminating the chances of errors ; repetitive practice in activities of physical education. The drill helps to fix specific association which can be recalled or reproduced automatically.

drill, accident : see 'accident drill'.

drill, fire : see 'fire drill'.

drive : a tendency to become sensitive to a certain type of stimuli and to respond in a certain manner for achieving the goal. For instance, the drive of hunger drives one towards food for the purpose of eating. R. S. Woodworth introduced this term into psychology in 'Dynamic Psychology' published in 1918. The term won popularity as an alternative to McDougall's use of 'instinct'.

driver education : classroom teaching and practice of driving with the purpose of developing proper skills, habits, and attitudes necessary for good driving.

Drona-parva (*Ind.*): [lit. Drona section) the seventh book of the *Mahābhārata* containing the battle under the command of Drona who is killed by Dhrishtadyumna.

dual personality: see 'personality, dual'.

duty [*dharma*] (*Ind.*): see '*dharma*'.

Dyarchy (1921-37), education under (*Ind.*): see 'education under Dyarchy (1921-37)'.

dynamic psychology: psychology that puts em-

phasis on drives and motives or on cause-and-effect relationships. The term is also used for 'Depth Psychology' which presumes that it is the unconscious processes that exert dynamic force. 'Behaviour dynamics' implies that motivations determine behaviour.

dysteleology: the theory that nature operates without any purpose.

E

E chart: see 'chart, E'.

echo question: a type of question, the answer of which is found in the question put. For instance, 'Gupta Period was the Golden Period in the History of India. Which period was the Golden Period?' Such type of a question has very little value as it does not stimulate thinking.

eclectic counselling: counselling which combines various techniques according to the special problems of the individual counsellee.

eclectic method: a method which combines selected elements of several methods of teaching and does not confine itself exclusively to one method.

educability: the capacity to take advantage of experiences and to adjust accordingly.

educand: a term used by Sir John Adams to mean 'a person who ought to be educated or who is suitable for, or worthy of education'.

education: [derived from the Latin word 'educare', lit., to educate, to bring up, to raise] the process of bringing up (the most general usage); a purposive influence exerted on the growing child by the society for maintaining and raising the level of culture attained; a social process which subjects the individual to the influence of a selected and controlled environment, like a school or college, for attaining the maximum individual development and social competency. It is a wider term than teaching. Teaching is the imparting of knowledge and skill, and it does not include the personal influence of the teacher. It differs from education which is both the imparting of knowledge and skill and the exerting of one's personal influence. Thus, education is a conscious and deliberate process in which one personality acts upon another with the purpose of modifying the development of the other by

means of the direct application of the educator's personality and the use of knowledge and skill.

education, adult: see 'adult education' and 'social education'.

education, agricultural: see 'agricultural education'.

education, aims in: see 'aims in education'.

Education, Basic (*Ind.*): see 'Basic Education'.

education, character: see 'character education'.

education, Constitutional provision relating to (*Ind.*): see 'Constitution of India, Preamble';

'...Art. 15 (1), (2), (4)'; '...Art. 26'; '...Art. 28'; '...Art. 29'; '...Art. 30'; '...Art. 45';

'...Art. 46'; '...Art. 337'; '...Art. 350-A';

'...Art. 351'; '...education a State subject

in the; '...entry 63 of List I'; '...entry 64 of

List I'; '...entry 65 of List I'; '...entry 66 of

List I'; '...entry 11 of List II'; '...entry 20 of

List III'; and '...entry 25 of List III'.

education, contract: see 'contract education'.

education, cultural: see 'cultural education'.

education, Curzon's contribution to: see 'Curzon's contribution to education'.

education, dancing-master: see 'dancing-master education'.

education, Dara Shikoh's interest in (*Ind.*): see 'Dara Shikoh's interest in education'.

education, democracy in: see 'democracy in education'.

education, democratization of: see 'democratization of education'.

education, driver: see 'driver education'.

education, Egyptian: see 'Egyptian education'.

education, elementary: see 'elementary education'.

education, formal: see 'formal education'.

education, Franciscan: see 'Franciscan education'.

education, fundamental: see 'fundamental education'.

education, further : see 'further education'.

education, general : see 'general education'.

Education, General Certificate of (*Brit.*) : see 'General Certificate of Education'.

education, Hebraic concept of : see 'Hebraic concept of education'.

education, higher : see 'higher education'.

education, liberal : see 'liberal education'.

education, mass : see 'mass education'.

education, moral : see 'moral education'.

education, narcotics : see 'narcotics education'.

education (1905—21), National Movement in (*Ind.*) : see 'National Movement in education (1905—21)'.

Education (1968), National Policy on (*Ind.*) : see 'National Policy on Education (1968)'.

education, negative : see 'negative education'.

education, nursery : see 'nursery education'.

education, paedocentric : see 'paedocentric education'.

education, parent : see 'parent education'.

education, Persian : see 'Persian education'.

education, philanthropic : see 'philanthropic education'.

education, philosophy of : the philosophy which attempts to interpret the meaning of education in terms of human interest and human experience. A philosophy of education should be based on a sound philosophy of life. Philosophies of education vary according to the cherished aims of societies. Three major trends may be identified as authoritarian, laissez faire, and democratic. The authoritarian is a teacher-centred philosophy, the laissez faire is a child centred one, and the democratic takes care both of the child and the teacher where education is a cooperative enterprise. The term may be used in a wider reference : for instance, every educator has or, at least, must have a 'philosophy of education'—a system of beliefs and convictions that guides his action in carrying out his responsibilities.

education, physical : see 'physical education'.

education, play-way in : see 'play-way in education'.

education, preparental : see 'preparental education'.

education, preschool : see 'preschool education'.

education, primary : see 'primary education'.

education (1854-1902), primary (*Ind.*) : see 'primary education (1854-1902)'.

education (1902-1921), primary (*Ind.*) : see 'primary education (1902-1921)'.

education (1921-1937), primary (*Ind.*) : see 'primary education (1921-1937)'.

education (1937-1947), primary (*Ind.*) : see 'primary education (1937-1947)'.

education (after 1947), primary (*Ind.*) : see 'pri-

mary education (after 1947)'.

education progressive : see 'progressive education'.

education, radio : see 'radio education'.

education, religious : see 'religious education'.

Education, Resolution (1904) of the Government of India on : see 'Resolution (1904) of the Government of India on Education'.

Education, Resolution (1913) of the Government of India on : see 'Resolution (1913) of the Government of India on Education'.

education, Roman concept of : see 'Roman concept of education'.

education, safety : see 'safety education'.

education, scientific movement in : see 'scientific movement in education'.

education, secondary : see 'secondary education'.

education (1854-1902), secondary (*Ind.*) : see 'secondary education (1854-1902)'.

education (1902-1921), secondary (*Ind.*) : see 'secondary education (1902-1921)'.

education (1921-1937), secondary (*Ind.*) : see 'secondary education (1921-1937)'.

education (1937-1947), secondary (*Ind.*) : see 'secondary education (1937-1947)'.

education (after 1947), secondary (*Ind.*) : see 'secondary education (after 1947)'.

education, sex : see 'sex education'.

education, social : see 'social education'.

education, socialization of : see 'socialization of education'.

education, sociology of : see 'sociology of education'.

education, Spartan : see 'Spartan education'.

education, special : see 'special education'.

education, teacher : see 'teacher education'.

education (1854-1904), technical (*Ind.*) : see 'technical education (1854-1904)'.

education (1904-1947), technical (*Ind.*) : see 'technical education (1904-1947)'.

education (after 1947), technical (*Ind.*) : see 'technical education (after 1947)'.

education (1854-1902), university (*Ind.*) : see 'university education (1854-1902)'.

education (1902-1921), university and collegiate (*Ind.*) : see 'university and collegiate education'.

education (1921-1937), university and collegiate (*Ind.*) : see 'university and collegiate education (1921-1937)'.

education (1937-1947), university and collegiate (*Ind.*) : see 'university and collegiate education (1937-1947)'.

education (after 1947), university and collegiate (*Ind.*) : see 'university and collegiate education (after 1947)'.

education (before 200 B.C.), women (*Ind.*) : see 'women education (before 200 B.C.)'.

education (200 B.C.-1200 A.D.), women (*Ind.*): see 'women education (200 B.C.-1200 A.D.)'.
 education (1200 A.D.-1800 A.D.), women (*Ind.*): see 'women education (1200 A.D.-1800 A.D.)'.
 education (1800-1854), women (*Ind.*): see 'women education (1800-1854)'.
 education (1854-1882), women (*Ind.*): see 'women education (1854-1882)'.
 education (1882-1902), women (*Ind.*): see 'women education (1882-1902)'.
 education (1902-1921), women (*Ind.*): see 'women education (1902-1921)'.
 education (1921-1947), women (*Ind.*): see 'women education (1921-1947)'.
 education (after 1947), women (*Ind.*): see 'women education (after 1947)'.
 educational cost: see 'cost, educational'.
 educational counselling: phase of the counselling programme relating to the adjustment of the pupils to schools, school courses, and curricular, study habits, etc. Educational counselling is designed to aid the pupil to achieve success in his educational career.
 educational development: growth in the ability to deal adequately with the environment through self-direction and direction by others.
 educational diagnosis: see 'diagnosis, educational'.
 educational documents in India: see 'Minto's Minute (1811)'; 'Charter Act of 1813'; 'Elphinstone's Minute (1823)'; 'Macaulay's Minute (1835)'; 'Bentinck's Proclamation (1835)'; 'Auckland's Minute (1839)'; 'Wood's Despatch (1854)'; 'Stanley's Despatch (1859)'; 'Indian Education Commission (1882-83)'; 'Indian Universities Commission (1902)'; 'Resolution of the Government of India on Education (1904)'; 'Resolution of the Government of India on Education (1913)'; 'Calcutta University Commission (1917-1919)'; 'Hartog Committee (1929)'; 'Wardha Education Committee (1937)'; 'Abbot-Wood Report (1937)'; 'Kher Committee Report (1940)'; 'Sargent Report (1944)'; 'University Education Commission (1948-49)'; 'Committee on Financing Educational Development (1950)'; 'Secondary Education Commission (1952-53)'; 'Assessment Committee on Basic Education'; 'Committee on Higher Education to Rural Areas (1956)'; 'Sanskrit Commission (1958)'; 'National Committee on Women's Education (1959)'; 'Committee on Religious and Moral Education (1960)'; 'National Service Committee (1960)'; 'Committee on Pre-Primary Education in Mysore State (1961)'; 'Committee on Emotional Integration (1962)'; 'Indian Parliamentary and Scientific Committee (1964)'; 'Committee of Members of Parliament on Higher Education

(1964)'; 'Kunzru Committee (1964)'; 'Education Commission (1964-66)'; 'Committee of Members of Parliament on Education (1967)'; 'National Policy on Education (1968)'; 'Committee on School Text-books (1969)'.

educational excursion: see 'school excursion'.

educational exhibits: see 'exhibits, educational'.

educational expenditure: expenditure on education broadly divided into two categories—direct and indirect. Direct expenditure represents the costs of the educational establishment at different levels, including the costs of teachers' salaries. Indirect expenditure is the amount spent on direction and supervision, building, furniture, scholarships, etc.

educational foundation: see 'foundation, educational'.

educational guidance: the use of standardized tests, mental and educational, together with progress record, school reports, etc. as a basis for advice to children, in particular, and parents, in general, regarding educational courses which should be followed after the child has passed through the primary school, and regarding other educational problems faced at different stages of instruction.

Educational Institute of Scotland (*Brit.*): the oldest and largest professional association of teachers in Scotland. It confers an ordinary fellowship to distinguished members of the profession.

educational ladder: a phrase used by T.H. Huxley signifying the various levels of the school system, each level succeeded by a higher level. The distribution of classes and the name of institution for each level will depend upon the school system existing in each country or State. In one country the levels of education may be arranged in this order—primary school, middle school, higher secondary school, and college or university; in another country it may be—elementary school, junior high school, senior high school, junior college, and university.

educationally blind: see 'blind, educationally'.

educational maladjustment: see 'maladjustment, educational'.

educational measurement: see 'measurement, educational'.

educational philanthropy: see 'philanthropy, educational'.

educational planning, Unesco and: see 'Unesco and educational planning'.

Educational Planning in India (1938-44): After the introduction of provincial autonomy under the Government of India Act 1935, Congress assumed office in nine out of the eleven

provinces of British India in 1937. In 1938, the National Planning Committee was appointed under the chairmanship of Jawaharlal Nehru for preparing a comprehensive plan of national development in all its aspects. Two sub-committees were appointed for education, one for general education under the chairmanship of Dr. S. Radhakrishnan, and the other for technical education under the chairmanship of Dr. M.N. Saha. Under the stress of political events and with the arrest of Congress leaders including Jawaharlal Nehru, the work of educational planning could not progress satisfactorily. It was only in 1948 that the committee could bring out a volume on Education. Side by side, the Central Advisory Board of Education had also taken up a similar work on educational planning in 1938, but it could bring out an exhaustive document entitled 'Sargent Report' or 'the Report on the Post-War Educational Development' only in 1944. The Sargent Plan was, however, not accepted for implementation after the Independence on the ground that it was prepared by an alien Government which did not take into account the national aspirations of the people.

Educational Policies Commission (U.S.A.): the Commission jointly established in America by the National Education Association and the American Association of School Administrators in 1935. It has made a profound impression on the thinking of the teaching profession.

educational prediction: see 'prediction, educational'.

educational psychology: a branch of psychology which studies and investigates educational problems by the help of psychological concepts and methods. Its beginning can be traced back to Aristotle, but Pestalozzi, Herbart and Froebel first attempted to 'psycholize' education on a scientific basis. Educational psychology is the foundation stone in the preparation of teachers. It concerns them with the 'when', 'what', 'why' and 'how' of learning. It helps the teachers to have an insight into the needs of learners, questions of adjustment and discipline, interpersonal relations, curriculum, methods, and evaluation. It can aid them in their own research informally conducted for their professional growth, or in other formalized research undertaken on a large scale.

educational quotient: [usually abbreviated to E.Q.] the quotient obtained by dividing the achievement age of a child by his chronological age, and multiplying by 100. A child whose achievement age is 12 years and chronological

age 10 years, will have an E.Q. of $\frac{12}{10} \times 100 = 120$. It is the ratio of the achievement age of the child to his chronological age expressed as a percentage.

educational research: any systematic striving through careful, critical and exhaustive investigation to understand an educational problem or to test a hypothesis in the field of education. The term, however, means different things to different people owing to the diversity of methods, materials and processes used in research. The methods of research are variously termed as historical research or philosophical research (in terms of the area of interest); normative-survey research or comparative research (in terms of goals); questionnaire research or testing research (in terms of the methods of collecting data). A good research is characterized by the care with which problems are formulated, technical terms defined, hypotheses formulated, population of subjects or objects is chosen for study, data-gathering devices are selected, data collected and analysed, and inferences or generalizations are drawn.

educational seminar: see 'seminar, educational'.

educational shortage approach: an approach to curriculum revision by analysing the shortcomings of the existing curriculum and educational system with the object of correcting them.

educational sociology: a science which describes and explains institutions, social forms, social purposes, and influences that help the socialization of the individual. It considers the interrelationship of education with other institutions, the influence of environment and educative agencies upon human behaviour, the role of the school in the total educative process, etc. It is the study of that phase of sociology which is educationally significant.

educational television: teaching classes through television. In America the first Educational Television Station went on the air in 1958. The number of Educational Television Stations in 1966 was 126. About two-thirds of the students enrolled in the schools and colleges in 1966, were in areas covered by educational television. The first educational television broadcast was made from Houston, Tex. Most of the Stations have been constructed or improved and expanded with the aid of Federal Grants. In India, the television lessons were first broadcast to the schools of Delhi in 1961.

education and literacy, adult (Ind): see 'adult literacy movement (before 1921)'; 'adult

literacy movement (1921-1937)'; 'adult literacy movement (1937-1947)'; and 'adult education movement (after 1947)'.

education code: see 'code, education'.

Education Commission 1964-66 (*Ind.*): a commission appointed in 1964 by the Government of India under the chairmanship of Prof. D.S. Kothari to advise the Government on the national pattern of education and on the general principles and policies for the development of education at all stages and in all aspects. The report (1966) is divided into three parts. The first part covers chapters I—VI and deals with general educational reconstruction common to all stages and sectors of education; the second part covers chapters VII to XVII and deals with different stages and sectors of education; the third part covers two chapters XVIII and XIX and deals with educational planning, administration and finance. Among the important recommendations were (i) Introduction of work experience and social service as an integral part of education (ii) Vocationalization of secondary education (iii) Adoption of regional language as the media in higher education (iv) Compulsory teaching of mathematics and science during the first ten years of schooling. The complete title of the report is 'Report of the Education Commission 1964-66--Education and National Development'. It is sometimes referred to as 'The Kothari Commission'.

Education Commission, Indian: see 'Indian Education Commission'.

Education Commission, Secondary (*Ind.*): see 'Secondary Education Commission'.

education, creative: see 'creative education'.

education during the Dharmashastra period (*Ind.*): see 'Dharmashāstra period, education during'.

education during the Pauranic period (*Ind.*): see 'Paurāṇic period, education during the'.

education during the Vedic period: see 'Vedic period, education during the'.

education ethics: see 'ethics, education'.

education extension: see 'extension, education'.

education for democracy: education that emphasizes the relation of the individual to democratic society. It is a preparation for a democratic way of living. (also see 'democracy in education'.)

education in ancient India, arts and crafts: see 'arts and crafts education in ancient India'.

education in ancient India, Buddhist: see 'Buddhist education in ancient India'.

education in India during Muhammadan rule: see 'Muhammadan rule, education in India during'.

educationist: a person who has achieved specialized knowledge, long experience and competency in the field of education; sometimes referred to great scholars and professors in professional departments of education. An educationist may be distinguished from an educator who is a devoted teacher helping towards educational development of his students.

education of the blind in India: comparatively of recent origin though the first school for the blind in this country was established at Amritsar in 1887 by a missionary, Miss Anne Sharp. This institution was transferred to Rajpur near Dehradun in 1903 and renamed Sharp Memorial Blind School. This school caters to the education and training of blind girls and very young boys. The number of schools for the blind has risen to 110 and it is estimated that out of about 5 lakhs of blind children of school going age in the country, the number of blind children enrolled in schools is about 5,000. In January 1959, a model school for blind children was established. The establishment of the National Centre for the blind at Dehradun is a great achievement in the field. The evolution of the Bharati Braille, a common Braille code for all Indian languages is another outstanding achievement.

education tax: a tax levied to meet a portion of the cost of education. It may be a certain percentage of land revenue in rural area, or a surcharge on property tax or other taxes in urban area.

education under Akbar (*Ind.*): see 'Akbar, education under'.

education under Ala-ud-din (*Ind.*): see 'Ala-ud-din, education under'.

education under Altamash (*Ind.*): see 'Altamash, education under'.

education under Ashoka (*Ind.*): see 'Ashoka, education under'.

education under Babur (*Ind.*): see 'Babur, education under'.

education under Bahadur Shah I (*Ind.*): see 'Bahadur Shah I, education under'.

education under Bahlol Lodi (*Ind.*): see 'Lodi, education under Bahlol'.

education under Balban (*Ind.*): see 'Balban, education under'.

education under Chandragupta Vikramaditya (*Ind.*): see 'Chandragupta Vikramaditya, education under'.

education under Dyarchy (1921-37) (Ind.) : education treated as a transferred subject under a dyarchical system of government in the provinces of India, introduced in 1921 as a result of the Government of India Act, 1919 passed by the British Parliament. Subjects of administration were divided into two categories *i.e.* Reserved and Transferred Subjects. The reserved subjects were put under the Governor and his executive council and the transferred subjects under the ministers who were responsible to the Provincial Legislative. Education was made transferred subject and the development of education was the responsibility of the Minister for Education. Finance was a reserved subject with the result that the Education Minister had to face many difficulties. Moreover, the Education Minister had no control over the I.E.S. officers whose services were controlled by the Secretary of the State for India.

education under Firuz Shah Tughlaq (Ind.) : see 'Tughlaq, education under Firuz Shah'.

education under Mahmud Ghazni (Ind.) : see 'Ghazni, education under Mahmud'.

education under Muhammad Ghor (Ind.) : see 'Ghor, education under Muhammad'.

education under Guptas : see 'Guptas, education under'.

education under Harsha (Ind.) : see 'Harsha, education under'.

education under Humayun (Ind.) : see 'Humayun, education under'.

education under Jahangir (Ind.) : see 'Jahangir, education under'.

education under Kanishka (Ind.) : see 'Kanishka, education under'.

education under Lakshman Sena (Ind.) : see 'Lakshman Sena, education under'.

education under Muhammad Shah (Ind.) : see 'Muhammad Shah, education under'.

education under Muhammad Tughluq (Ind.) : see 'Tughluq, education under Muhammad'.

education under Nasir-ud-din (Ind.) : see 'Nasir-ud-din, education under'.

education under Provincial Autonomy (1937-47) (Ind.) : education under the Government of India Act, 1935 which divided all educational activities into two categories—Federal (or Central) and State (or Provincial). (A) Federal Subjects included (i) the Imperial Library, Calcutta, the Indian Museum, Calcutta, the Imperial War Museum, the Victoria Memorial, Calcutta, and any similar institution controlled or financed by the Federation ; (ii) The Banaras Hindu University and the Aligarh Muslim University ; (iii) Preservation of ancient and

historical monuments ; (iv) Education in the defence forces ; (v) Archaeology ; and (vi) Education in Centrally Administered Areas. (B) State subjects included all matters regarding education other than those which had been included in the Federal List and were regarded as State or Provincial Subjects.

education under Qutb-ud-din : see 'Qutb-ud-din, education under'.

education under Raja Bhoja (Ind.) : see 'Raja Bhoja, education under'.

education under Shah Jahan (Ind.) : see 'Shah Jahan, education under'.

education under Sher Shah (Ind.) : see 'Sher Shah, education under'.

education under Shivaji : see 'Shivaji, education under'.

education under Sikander Lodi (Ind.) : see 'Lodi, education under Sikander'.

education under Sultana Raziya (Ind.) : see 'Raziya, education under Sultana'.

education under the Satvahanas (Ind.) : see 'Satvahanas, education under the'.

educative experience : see 'experience, educative'.

effect, principle of : a principle of learning. The response to a stimulus is strengthened if the result is pleasant but it is weakened if the result is otherwise.

egoism : the urge of the human beings to achieve some measure of distinction with a view to boost and perpetuate their ego, the sense of self. This egoism is sometimes referred to as egocentricity, self-importance, self-regard or self-esteem. Such a person is always busy and concerned with his own interest and welfare, rather he is conceited of himself. Egocentricity is the characteristic of the small child who tries to possess everything around him. With age, maturity and experience of the world around, the egoism declines and a balance is sought between egoism and altruism.

Egyptian education : Egyptian education in the olden type primarily aimed at inculcating the proper respect for the gods, the development of the Egyptian civilization (which meant the creation of artistic and practical forms of expression) and the recognition of commerce and trade. These aims of education were both cultural and utilitarian. Reading and writing were emphasized as the language of commerce ; literature, both religious and secular was studied ; mathematical subjects had their important place.

eidetic imagery : a very vivid imagery on mental screen as if one were actually seeing the object which is not literally present. Such imagery

is more common in children than in adults.

eight year elementary school : see 'elementary school, eight year'.

Ekam sad (Ind.) : the complete aphorism being '*Ekam sad, viprā bahudā vadanti*', meaning 'There is only One Real, but the wise speak of it variously.'

elementary education : the period of formal education beginning about the age of 5 to 7 and continuing till the beginning of adolescence or the secondary education. It may have five to eight classes depending upon the existing school system. In contrast to secondary education, it is less specialized in subjects and less selective as to students.

elementary school, eight year : a school having eight classes for the children of elementary-school age, normally requiring 8 years to complete the school.

elementary school, six year : a school having six classes for the children of elementary-school age normally requiring 6 years to complete the school.

Eleven Plus Examination (Brit.) : an examination which determines selection at about the age of eleven for places in grammar schools and sometimes technical schools. It normally comprises four parts (i) tests of intelligence, (ii) tests of attainment in English and Arithmetic, (iii) examination of records of the child's work at primary school with teacher's recommendations, (iv) interviews in border line cases. The proportion of children admitted to grammar schools in England is about twenty percent.

Ellora (Ind.) : a place near Aurangabad, about 30 miles from Ajanta, famous for 17 Hindu, 12 Buddhist and 5 Jain cave temples and monasteries carved out of the living rock from 5th to 8th centuries. Among the distinctive features are the wealth of mythological sculpture, the exquisite grace and strength in the figures, the fine details of head dresses and ornaments, and the tremendous size and long cloisters of some temples. The crowning achievement is the great Kailāshanūtha Temple, splendidly carved like a statue from the hillside, beginning at the top of the cliff and touching down to the base.

Elphinstone's minute (Ind.) : the minute of Mountstuart Elphinstone, the Governor of Bombay, written in 1823 in which he defined the policy of State initiative and control in education, and stressed the need of co-operation between State and private efforts.

emotion : a state of strong feeling accompanied by physiological reactions. The common emotions are joy, anger, fear, grief, disgust,

pity and affection. It has been difficult to define emotion in face of conflicting theories. It is the dynamic force of an instinct or an excited state of mind followed by goal-directed effort as McDougall would put it, or the affective state of mind as a result of instinctive behaviour being balked, as Drever would say. Emotion is used for a system of feelings and has synonymous nearness to terms like sentiment, mood, passion. When the emotion is aroused it causes a person to do something which will restore balance. The work of education is to channelize the released energy properly.

emotional adjustment : effective control of the emotions and manifestation of good and appropriate emotional responses to the situations of life ; reasonable stability in emotional responses.

emotional integration : the feeling of oneness which may transcend group or cultural differences. In general, it has been considered as a feeling of oneness, brotherhood and patriotism. This feeling among people helps them to share certain common objectives, purposes or ideals and to give them high precedence over smaller, personal or sectional loyalties. Emotional integration however does not mean a complete unification or standardization of all the diverse elements of a culture that add beauty, strength and richness to a culture.

Emotional Integration. Committee on (Ind.) : see 'Committee on Emotional Integration'.

empathy : identifying oneself with the consciousness of another person ; projecting oneself into an external object or a work of art through imagination ; take on the same feelings as those of another.

empirical : based on experiments, surveys, and proven facts. It may be distinguished from that which is asserted by arguments or opinion.

emulation : an effort of an individual to equal or excel the achievements or personality traits of another. Competition implies ranking ; emulation allows all to succeed. The children have a natural desire to model their life according to their particular heroes. The school and the society have always made use of this tendency in character building. The ancient Greeks wanted their boys to become an Achilles in courage and an Ulysses in wisdom. In India, the students are expected to model their life on the ideals of Mahatma Gandhi, Jawaharlal Nehru and other great heroes of our country. The tendency to emulate is greatly fostered by motion pictures, television, popular literature and the comics, which provide such models of

glamorous heroes that the students are tempted to copy. This makes the work of the school difficult in developing desirable attitudes through the use of emulation.

encyclopaedia : [a Greek word ; lit., circle of information]. the idea of encyclopaedia is Greek. Aristotle is credited with being the first to attempt all the knowledge of his time into a series of books. The word "Encyclopaedia" first appeared in 1541 as the title of a book written by J.F. Ringelberg and printed at Basel.

endocrine glands : ductless glands secreting internally. They form a group of mutually interdependent body organs each having a distinct function. They take material from the blood and turn it into hormones which are then passed into blood stream to act as a chemical regulator. They regulate the growth of the body, reproductive functions, nutrition and mental activity. The group of glands consists of the pituitary, the thyroid, the parathyroids, the adrenals, the islands of Langerhans in Pancreas, the thymus and the reproductive glands.

endowment of research : a financial provision where the principal fund is to be prudently invested so that the income thereof is to be used to extend the frontiers of knowledge by means of research.

end spurt : a tendency of sudden increase of energy displayed at the end of a work. (also see 'beginning spurt'.)

engineering : subjects which according to the classification used by Unesco includes : engineering proper, such as civil engineering, mechanical engineering, electrical engineering, chemical engineering and specializations there under ; applied sciences, such as industrial chemistry and the like ; specialized technologies or interdisciplinary fields, such as ship-building, textiles, metallurgy, mining, industrial engineering, etc.

English, Basic : see 'Basic English'.

English Education Acts (Brit.) : The chief Education Acts of England are : 1870 Act or the Forster Act which established a national system of elementary education ; 1902 Act or the Balfour Act which abolished the school boards and created local educational authorities ; 1918 Act or the Fisher Act which extended the powers of local education authorities ; 1944 Act or the Butler Act which provided a completely co-ordinated system of national education in three successive stages i.e., primary, secondary, and further education and which replaced the Board of Education by a Ministry of Education under the charge of a Minister.

These acts are also named after the statesmen who introduced them.

Ennayiram Temple College (Ind.) : a famous centre of Vedic learning which existed at the beginning of the 11th century A.D. at Ennayiram in South Arcot district. The college was provided with 300 acres of landed property for offering free tuition, boarding and lodging to 340 students. There were 16 teachers, three for the Rigveda, three for the Black Yajurveda, two for Mīmāṃsā and one each for the rest of the subjects.

enrichment : extra activities and experiences provided for children so as to help them to grow to their full capacity. Through enrichment programme the regular school work is strengthened and supplemented to widen the outlook and deepen the interest of the children. Such opportunities are specially provided for gifted children.

enrichment of experience : the development of broader and deeper understanding about a subject or topic. Reading or study of literature, to quote an example, brings such enrichment.

environment : all the objects, conditions and factors around an individual having the power to influence him. It is the first concern of the school to provide for its pupils a rich, pleasant and stimulating environment which will evoke their manifold interests and make life a joyful experience. When a child is under the constant influence of good work and good thoughts, there grows in him a tendency to become good.

environmental differences, interfamily : differences of home environment from family to family due to social status, family income and educational levels of parents. It may be distinguished from intrafamily environmental difference where factors within a home cause differences in the children of the same family.

environmentalism : the thinking that stresses the influence of the environment—physical, biological, psychological or social—on the development and behaviour of an individual, and minimizes the influence of heredity.

Epicureanism : the philosophy of Epicurus who regarded pleasure as the goal of life and the basis of all good. Pleasure being recognized in terms of simplicity, repose, pleasing conversation, honour, etc., and not in the sense of luxury and bodily enjoyment. Epicurus said, "If thou wilt make a man happy, add not unto his riches, but take away from his desires."

epidiascope : an aid to teaching that can project loose pictures as well as pictures and diagrams from books.

epitome method : a method for the extensive study of a subject by the help of summaries, abstracts and outlines.

equal-additions method : a method of subtraction when the subtrahend figure is greater than the corresponding minuend figure, the minuend figure is increased by 10 and the next subtrahend figure by 1 ; as in the case of $34-18$, 4 is read as 14 for subtracting 8 from it and 1 is read as 2 before subtracting it from 3. This is also called borrow-and-repay method or carry method.

equalitarianism : the philosophy based on the doctrine of equality.

equality, doctrine of : a doctrine that originally meant that all men are created equal, now, believes that all persons are entitled to equal opportunities for their own potential development to an optimum level.

equalization programme : a plan of the government for equitable distribution of the cost of any educational programme basic to all schools.

equated scores : scores from different types of a test reduced to a common basis of scoring so that the derived scores could be directly compared.

equipment : items such as furniture, machines, apparatus, instruments audio-visual aids, books, etc., which the school uses—and not consumes—as distinguished from school supplies.

equipment library : the furniture, stacks, books, lamps and other fittings of a library.

equipment, sight saving : special equipment like large-size maps, large-type books and large-type typewriters meant to minimize eyestrain of the visually handicapped.

equivalent forms : similar forms of a standardized test that yields closely similar scores

error, probable : see 'probable error'.

error, variable : see 'variable error'.

error of estimate : the amount of difference between the actual value of an observation and an estimated value; the deviation of value of a dependent variable from the regression line. It is also called 'error of prediction'.

error of grouping : a variable error resulting from the practice of combining unlike scores in class intervals.

error of observation : the amount of difference between a given measurement or observation and the theoretical true value, or the most probable value.

error of prediction : see 'error of estimate'.

error of sampling : the variation in a statistic

due to the fact that the given observations are not perfectly representative but are based on an unrepresentative sample.

escape mechanism : ways of escaping from reality by means of day-dreaming, fantasy and repressions, etc.

esprit de corps : [lit., spirit of the corps] a term implying team spirit, feeling of loyalty and a sense of belongingness which a good school should engender in the students.

essay examination : an examination in which the answers are written out in paragraphs or essay form. This type of examination suffers from a certain amount of subjectivity as the marking or grading of the same answers may differ from examiner to examiner. Objective tests or short-answer examination help to reduce the subjective element but cannot make up for some good points implied in an essay examination.

essay test : see 'test, essay'.

Essentialism : the doctrine implying that a certain core of culture, including certain knowledges, skills, and ideals is indispensable and therefore should be rigorously taught to all without exception. It believes in certain universal constants in education. 'Philosophy of constant fundamentals' is a synonymous term.

essentialists : those educational theorists who emphasize the transmission of the basic elements of human culture to each generation as the primary function of organised education. Michael J. Demiashkevich (1891-1939) was the originator of this name. 'Essentialism' is taken as the *antithesis* of 'Progressivism'.

esthesiometer : one of the instruments for sensory tests ; used for measuring tactual activity and determining the spatial threshold.

ethical freedom : see 'freedom, ethical'.

ethical sense : the power to judge the moral value or quality of acts by direct intuition, without taking recourse to rational analysis.

ethics, education : the principles of ethical conduct expected between students and teachers, between teachers and teachers, between teachers and parents, and between teachers and the employing agency.

ethics, idealistic : the theory that the ideals of human perfection should be the true goals of human conduct with special stress on the rational and spiritual aspect.

ethics, professional : A code of professional ethics helps to promote professional growth and understanding. The National Education Association of America adopted a code of ethics as early as 1929. The schools, school

districts, professional organizations can develop their own codes of ethics. Codes are more effective when they are co-operatively developed. They generally stress teacher relations with children, with associates, with parents and community and in personal and civic affairs. The codes establish standard conduct which raises the prestige and status of the teaching profession in the community.

ethnocentric personality: the traits in an individual who is generally prejudiced or even hostile towards groups to which he does not belong.

ethnocentrism: a generalized attitude to reject members of groups other than one's own, and to exalt the superiority of one's own group, particularly the ethnic and national groups; the attitude that divides the social world into two groups, *i.e.* the in-groups with which a person identifies and the out-groups to which he remains hostile.

etiquette: rules of behaviour. It has been an old practice to teach good manners and stress common matters of etiquette and courtesy in the schools. Today it is receiving attention from a number of different angles through references in the text book, moral instruction classes, guidance work, discussions in assemblies or home rooms and checking of lapses. It is however stressed that good manner or etiquette is not an end by itself. It is the surface expression of good character and therefore must be motivated from within. The fundamental traits of character should be so developed that etiquette and good manner come easily.

Eton College (Brit.): a famous public school founded by Henry VI in 1440 as a preparatory school for King's College, Cambridge. Many of England's most famous statesmen and soldiers received their education at Eton. Henry More, Henry Fielding, Thomas Gray, Horace Walpole, Shelley, Gladstone, Swinburne and Robert Bridges are some of the eminent names connected with the college. The Duke of Wellington, a famous Etonian, once said that the battles of England were won on the playing fields of Eton.

etymology: the study of the history of words, their origin and derivation.

eugenics: the study of social and environmental factors capable of improving or impairing the inherited qualities of the future generation.

eurythmics: a type of physical training invented by Emile-Jaques Dalcroze consisting of co-ordination of music and movement so as to develop rhythmic responses.

euthenics: the study of wholesome living with respect to food, shelter, clothing, light, ventilation, etc.

evaluation: the term used for describing and judging some selected attributes of an individual or group of individuals, a curricular procedure, a total school programme, or any other aspect of education. The process of evaluation involves three distinct stages: selecting the attributes for evaluation; developing and applying procedures for accurately describing these attributes; and synthesizing of evidences resulting from these procedures into a final judgment.

examination, essay: see 'essay examination'.

examination, physical: an examination to determine the physical fitness and the general condition of health of an individual.

exceptional child: one who deviates mentally, physically or emotionally from the average child to such an extent that he requires special school provisions. Usually such children are classified as: (1) the gifted (2) the mentally defective (3) the physically handicapped.

excursion, school: see 'school excursion'.

executive council: a council of a university having the executive authority in both administrative and academic matters and composed of representatives and nominees of Central and State governments, alumni, the senate and the academic council.

exemplary punishment: a form of severe punishment given to students to deter others from committing a similar offence.

exercise, completion: see 'completion exercise'.

exercise, dictation: an exercise for the purpose of giving practice and testing on certain aspects of language, especially spelling, by dictating words, phrases or paragraphs at a required speed to be written down by the students.

exercise, learning: an assignment given to a class or an individual, like a lesson to be prepared or a sum to be worked out or an essay to be composed, for the purpose of promoting learning.

exercise, matching: see 'matching exercise'.

exercise, principle of: a principle of learning based on use and disuse; what is used and practiced is learned, and what is not used and practiced is forgotten.

exhibits, educational: display material consisting of posters, charts, models, maps, specimens and all other types of audio-visual aids required to depict or represent the theme or topics of the exhibition. Each exhibit tells a story or brings out a concept with a vivid directness or strikingly graphic manner.

Material for the exhibits or exhibition are generally prepared by the schools, or sometimes obtained from museums, government organizations and commercial agencies, free or on loan or at some price, sometimes nominal. Exhibition to be educative and meaningful needs proper planning and organizing, labelling, arranging, and picturesque displaying. Too much crowding of material, lack of sequence or classification, want of aesthetic sense and an absence of a clear objective may mar an exhibition, however costly and glamorous may be the exhibits and display items.

existential psychology: see 'psychology, existential'.

expectancy: the standard of future achievement considered as reasonable for the individual pupil.

expenditure, educational: see 'educational expenditure'.

expenditure, indirect: see 'indirect expenditure'.

expenditure, recurring: see 'recurring expenditure'.

experience, art: pupil's participation in creative, appreciational and functional activities connected with art. The experience may be graphic (drawing and painting), decorative (designing), glyptic (modelling) motor-constructive (industrial arts) according to the specific characteristic of the art.

experience, chromatic: art experience including appreciation, understanding and the use of colour in all the various ways possible.

experience, creative: art experience concerned with actual application of art techniques and producing original art work, as distinguished from understanding, appreciating or copying works of art.

experience, educative: any interaction of the individual with the environment to bring about desirable changes according to the social, cultural and individual needs.

experience, reconstruction of: see 'reconstruction of experience'.

experience, work: see 'work experience'.

experience curriculum: consists of a series of purposeful experiences and activities growing from pupils' needs which arise out of their interaction with the environment.

experiment: a well planned procedure using controlled conditions designed to discover relationships which will either confirm or disprove the truth of a hypothesis. Sometimes the word is loosely used for a mere try-out or trial of a procedure without the control of conditions needed for observation.

experiment, classroom: an experiment carried

out within the confines of a classroom, or classrooms.

experiment, methods: an experiment in which teaching procedures are studied or tested, while the content of learning remains the same.

experimentalism: a term used for the pragmatic educational philosophy of John Dewey and his followers who hold that the real test of beliefs and practice is through the experimental techniques of science.

experimental method: a scientific method in which conditions, that are likely to affect a result, are controlled by the experimenter. It involves dependent and independent variables. In an experimental control there is a control on conditions other than the experimental variable.

experimental school: an elementary or secondary school directly or indirectly connected with a professional institute of education where pupil teachers have their teaching practice. It may also be used to try and test new methods of teaching, new subject matter and curriculum, or to demonstrate new concepts.

experiment group: the group in an experiment which is similar in every respect to the control group, except that it includes the experimental variable. This group helps to find out the effects of experimental variables.

exploratory drive: a tendency to explore a new environment; not clearly distinguishable from curiosity or manipulation drive.

exploratory method: a method organizing school studies which would provide ample opportunities for exploration, investigation and experimentation.

expression, manual: child's expression of ideas, impressions and feelings by the use of his hands in creative and imitative work through the medium of clay, paints, blocks, etc. Modelling, painting, and block construction are forms of such expression.

expression, motor: child's expression of his ideas and feelings through his body in the form of dancing, dramatic or manual expression like drawing, block-construction, etc.

expressional skill: see 'skill, expressional'.

expulsion: the total exclusion of a student from a school, college or university as a punishment for some serious breach of discipline. It is to be distinguished from 'rustication' which is exclusion for a certain period.

extension, educational: expansion of educational facilities and opportunities by the universities, museums and libraries to reach a larger community it directly serves,

extension services : extended education activities. Special services organized by selected teacher training colleges and institutions to offer and extend help to school teachers in solving their classroom problems, in trying out new methods, in carrying out new projects and in becoming better teachers.

extensive method : a method of studying a subject which aims at a broad survey of the field rather than highly detailed study of selected areas or aspects. It also refers to a method of teaching in which the teacher makes extensive use of illustrations, examples and applications so that the students may thoroughly understand the subject or topic taught.

extensive reading : see 'reading extensive'.

external morality : see 'morality, external'.

extinction : the process of presenting the conditioning stimulus without reinforcement to an organism previously conditioned; also the reduction of a conditioned response resulting from this or a similar procedure.

extraclass activities : see 'activities, extraclass'.

extracurricular activities : the activities which are not strictly curricular and the performance of students in these activities usually does not affect their annual promotions; these activities are usually carried outside school hours for preparing students for practical life and giving training in citizenship. The trend is to include these activities in the regular time-table

as far as possible and to use the term 'co-curricular' or 'intracurricular' activities. Games and sports, competitions, celebrations of festivals, excursions, dramatic plays, magazines, social services etc. are included under this term.

extraneous movement : unnecessary movement of the head, eye, lips or muscles while reading, which should be corrected as it does not help the reading process and may develop into mannerism.

extrapolation : the process of locating a point outside two or more known points in accordance with the rules operating in the given case.

extrateaching duties : professional duties and responsibilities of a teacher other than those concerned with teaching.

extrovert : a person whose thoughts, energy, interest and behaviour are directed to persons and things outside of his own self. The word 'extravert' is preferable to 'extrovert', and some would prefer to use the expression 'he is extraverted' rather than comment, 'he is an extravert'. This is opposite of 'introvert'.

eye span : the amount of material grasped in one fixation pause of the eyes. The term is used for the reading process and is measured by the number of letters or letter spaces.

eye-voice span : in oral reading, the distance measured by the number of letters between the word being spoken and the word, at the moment, being looked at (as the voice lags behind the movement of the eyes).

F

factor analysis : a statistical method widely used for analysing test scores or correlations of scores.

faculty meeting : a meeting of the teaching staff of a school for the purpose of discussing common problems of the school or the profession to help the administration or to stimulate the professional growth of the staff.

faculty theory : the theory that the mind is composed of a number of distinct 'mental faculties' or abilities like memory and imagination which can be properly trained through specific exercises. The term 'mental faculty' is now obsolete and the basis of faculty psychology is mostly discredited.

fagging (Brit.) : the common practice of making small boys perform menial work for big boys in English public schools.

family information : information regarding the number of members, their ages, educational attainments, occupations, income, etc.

family life education : any educational programme which is designed to prepare the individual in participating happily and usefully in family life.

fatalism : the belief that all events are absolutely predetermined, and human intelligence and endeavour cannot change the fixed course of destiny. It develops an attitude of submission to all that happens as inevitable.

fatigue : the decreased ability to do work, physical or mental as a result of prolonged work. Fatigue in the classroom may be aggravated due to several factors like uncongenial physical environment, uninteresting curriculum and teaching method, bad health or

backwardness of the pupils. Fatigue appears to be relative to the whole learning situation. Fresh air, better conditions of work interspersed with rest and recreation, properly arranged time table, dynamic methods of teaching, stimulus and vivid interests will help to reduce the element of fatigue in school work.

fatigue, visual : see 'visual fatigue'.

fear : an emotion of fright or dread in the face of danger or pain. It is accompanied by great organic changes when one would try to hide or run away. Fear has an inhibiting or blocking effect as is seen in a child incapacitated to recite a poem before his class. Fear of the teacher, failure in examination or punishment may make the child indifferent to the school. In education attempts are made to make the child free from unnecessary fears which interfere with his happiness and confidence. But all fears cannot be prevented and some are necessary to add protection to the child.

Federal aid (U.S.A.) : aid given by the Federal government to educational institutions and school systems. Education in the United States is commonly regarded as primarily a State and local matter, with legal control vested in the States. But throughout its history federal aid to education has been a characteristic national policy. This aid is generally but not necessarily subject to federal controls. In 1957, the United States Office of Education listed 137 federal educational programmes and services. Among the important programmes—land grants to agricultural colleges, vocational education, federal loans for college buildings, armed forces educational programmes, education of dependent children overseas, etc. may be mentioned.

feeble-minded : persons with intelligence quotients under 70. In general, the feeble-minded are of such limited intelligence that they cannot deal adequately with normal situations.

feeling : a kind of experiencing; a type of sensation. The word is used in many ways for different references. In the broadest sense we use the word for any kind of experiencing. It is also used to indicate the sense impressions from the skin, e.g., feeling of pressure for pressure sensation. The meaning may be extended to any type of sensation or sensing, like feeling well. Affective states like emotions, sentiments, desires, cravings, passions involve feelings of various intonation and colouring. Pleasure and unpleasure or liking and disliking are two feeling elements distinguished in traditional psychology. Freudians distinguish

two elementary feelings—that of love and hate.
field method : method of study and observation of things in their natural setting outside the laboratory, library or institution e.g., for the study of culture, the researcher lives closely with the people he is studying for securing his data by observation of the behaviour of members of the culture and by interviews with selected informants.

field work : work, usually of a practical or supervisory nature, carried on outside one's office, institution or administrative headquarters.

film, sixteen-millimetre : motion-picture film 16 mm. wide, mostly used for educational purposes. Other popular sizes of film are 8 mm. motion-picture film and 35 mm. photographic film. The width is measured between sprocket holes.

filtration theory (Ind.) : a theory which guided the British educational policy in India during the 2nd and 3rd quarters of the 19th century to the effect that 'education was to permeate the masses from above'. The theory advocated the education, through English, of the upper classes from whom it would filter down or descend to the lower classes.

Financing Educational Development, Committee on (Ind.) : see 'Committee on Financing Educational Development'.

fine arts : the term used for painting, sculpture and architecture. In a broader sense it also includes literature, music, dance and drama. According to the classification used by Unesco, the subjects included are architecture, drawing, music, painting, sculpture, speech, dramatic art and similar subjects.

finger alphabet : letters of alphabet indicated by the various positions of the fingers, used for communication with the deaf.

finger dexterity test : tests used as indicators of aptitude for work involving rapid manipulation of objects; particularly the picking up and placing of small parts, as in the assembling of clocks, similar instruments.

fire drill : the regular practice in the quick and safe evacuation of children and teachers from a school building in response to a fire alarm, so that the school may be ready to face an emergent situation without getting panicky.

First All-India Educational Survey : see 'Survey, First All-India Educational'.

First Five Year Plan on education (Ind.) : see 'Plan on education, First Five Year'.

first quartile : the 25th percentile; the point on a scale of values below which 25 percent of the cases lie.

five W's: who, what, when, where and why—the five questions that the readers expect to be answered in the lead of a news item.

Five Year Plans on education (*Ind.*): see 'Plans on education, Five Year'.

fixation: a rigid habit developed by repeated reinforcement; strengthening of a learned tendency like a motor habit, 'Affective fixation' is an excessive attachment for someone or something is manifested. In 'positive fixation' one learns to prefer a method of attaining goal which carries reward and in 'negative fixation' one learns not to prefer a certain act as it is accompanied with punishment.

fixed-alternative question: a question which offers a choice between two or more specified alternative answers.

flash card: a small card with something written on it which the teacher holds up before the class for a short time and then asks questions about it.

Fleming Report (*Brit.*): a report (1944) of the Committee on Public Schools appointed in 1942 under the chairmanship of Lord Fleming 'to consider means whereby the association between the Public Schools and the general educational system of the country could be developed and extended'. It was set up on the request of the public schools themselves, as they were becoming conscious of the social changes around and were anxious not to be isolated. The committee concluded that the choice between a day and boarding education ought to be made freely, and should not depend on financial considerations and should not be confused by the social distinctions. The report, however, suffered from its failure to suggest a workable selection procedure.

flexibility of school buildings: buildings which can be adapted for various uses according to the changed requirements. Such buildings have possibilities of enlarging or reducing the size of rooms by flexible or movable partitions, and turning laboratories into classrooms or a gymnasium into an auditorium.

fluency: the amount of language or the number of words that can be produced in any given time.

fluency in reading: uninterrupted rapid reading without faults.

focused interview: an interview 'focused' on the subjective experience of a person exposed to a predetermined situation such as viewing a film or listening to a record.

folk high school: a type of adult school inspired by Nicolaj Grundtvig and established in

Denmark in 1851. Such schools helped in raising the standards of rural life and became popular in all Scandinavian countries.

folk-tales: tales used in imitation of the German 'volkssepos' and 'volkslied' denotes the traditions current among the common people of all countries of the world. The folk-tale of ancient Greek, Rome and India have been studied very carefully and have proved very instructive.

'footrule' coefficient: an index giving an estimate of correlation between rank orders on two variables. It is distinguishable from Rank-correlation (ρ).

foreign language, methods of teaching: methods are diverse depending upon what aspects of a language are to be learnt, the degree of mastery desired and the assumptions made regarding the best means of achieving these ends. Generally there are four kinds of skills which can be attained in learning language: understanding, speaking, reading and writing. The emphasis laid on each of these four skills and the way the four are brought into play in a language programme vary widely. Of the contemporary methods of foreign language teaching four characteristics are prominent: audio-lingual emphasis, direct method, pattern practice and contrastive structure analysis. The audio-lingual or aural-oral emphasis is justified on the ground that spoken language normally precedes written language. In the direct method, all language work is done in the foreign language with the support of pictures and gestures, but with strict avoidance of the use of student's mother tongue, except where some reasonable allowance is made. The pattern practice consists of mastering the structural patterns of the language through constant drilling so that the patterns may automatically help in the actual use of the language. The contrastive structure analysis deals with the contrasts between the foreign language and the mother tongue to identify the typical learning difficulties and thus to help in acquiring a foreign language.

foreign languages, research on teaching: in foreign language research, experimental control of a single variable in the classroom setting is not possible as it may involve the revision of an entire text-book. Even in a miniature language-learning setting, the experiments look quite artificial, unrelated to the everyday classroom situation. Representative research studies have used broad comparisons between modern language teaching methods and traditional ones, but the results have remained largely inconclusive. The large-scale investigations undertaken

by Agard and Dunkel (1948) though lacked exact controls, provided valuable information about how effective can be the new type of oral courses. The Agard-Dunkel report provides a variety of novel techniques in foreign language teaching and a wealth of relevant information. Few other studies conducted by Cheydleur and Schenck (1950), Fishman (1957) and Murrison (1958) involve broad comparisons between instructional methods. Educational research has contributed little to the methodology of foreign language teaching. Research has yet to guide as to who should be taught foreign languages, at what age instruction should begin, how long it should be continued, what skill is to be stressed and what kind of teachers and equipment are required for the success of a programme.

forgetting : not being able to recall, recognize or do something. There is a relationship between the amount of forgetting and the duration elapsed between learning and recalling it to memory. Speed and amount of forgetting is maximum just after learning. In order to remember the maximum it is necessary to repeat, revise and recollect the thing or lesson learnt.

formal discipline : teaching according to some form or pattern ['discipline' derived from the Latin word 'discere', lit., to teach]. In such a teaching the stress is on the form of the mind rather than on the content of the subject and, therefore, the teacher's duty is to provide exercise in reason, memory imagination or like traits through teaching of those subjects which are supposed to improve these mental powers. Such an assumption is closely related to Faculty Psychology. It was this belief that continued the teaching of certain subjects in the past even when their obvious usefulness had disappeared. It yet needs special investigation if certain subjects provide help for formal training.

formal education : conventional type of training or education depending on a set plan, pattern and method. It is sometimes used in a derogatory sense to indicate that the students' experience has been kept restricted within the four walls of a classroom completely cut off from the experience of the real world outside.

formative period : a period in early growth when the development or behaviour of a child is most susceptible to change.

foundation, educational : a philanthropic foundation utilizing its funds for educational purposes.

Four-H Clubs : the name of the children's clubs organized under the co-operative agricultural

extension work system which provided training in agriculture and home economics. The four H's stand for head, heart, hand and health.

Franciscan education : the teaching started by the Franciscan Order founded by St. Francis about 1212. This was almost similar to the teaching carried on by the Dominican Order, but it was concerned more with preaching and public service.

fraternal twins : twins developed from two different fertilized eggs (ova). They may possess difference in hereditary characteristics as ordinary brothers and sisters.

fraternity : association of men formed for social or professional ends.

free association : refers to the process of responding to a given word with the first word that comes to mind ; unrestricted sequence of words or ideas. In a 'Free Association Test' a word is spoken and the person is asked to speak another word as quickly as possible. In psychoanalysis a person takes up an item in a dream and relates freely whatever comes to his mind. The association is called free because it is not restricted by any direction or instruction. It is, however, not quite free since it is determined by previous experience or psychic make up of the person.

free-association test : see 'test, free-association'.

freedom, academic : see 'academic freedom'.

freedom, ethical : the freedom to act according to one's own convictions or beliefs about right or wrong.

free education : education given free in schools and colleges at public expense.

free play : see 'play, free'.

free reading : see 'reading, free'.

free school education (Ind.) : all education free in Jammu and Kashmir and Nagaland. Education at the school stage is free in Tamil Nadu, Andhra Pradesh and Mysore. Primary education (classes I to VII or I to VIII as the case may be) is free in all States except Assam (only boys in classes VI to VIII), Bihar (boys only in classes V to VIII), U.P. (for boys only in classes VII and VIII) and West Bengal (in some urban areas in classes I to V and generally in classes VI to VIII).

French Academy, The : see 'Academy, the French'.

frequency, distribution : see 'distribution frequency'.

frequency polygon : a graphic representation of a frequency distribution, in which each frequency is plotted as an ordinate above the mid-point of its class interval, and then these plotted points are connected by straight lines.

Froebelian gifts : the set of play material for use in Kindergarten as recommended by Friedrich Froebel (1782-1852). It comprises six sets arranged in order of difficulty and includes coloured balls, cubes and blocks.

frustration : the state of being baffled, balked or thwarted when trying to satisfy one's desires. A person is called to have 'frustration tolerance' if he has the ability to accept his frustration and does not allow expression of a disordered behaviour. Such is the characteristic of a well-adjusted person.

frustration tolerance : see 'tolerance frustration'.

functional approach : an approach to teaching any topic or subject according to its usefulness and stressing its functional value.

functional arithmetic : see 'arithmetic functional'.

functional grammar : see 'grammar, functional'.

functional learning : see 'learning, functional'.

functional psychology : see 'psychology, functional'.

functions of Unesco : see 'Unesco, functions of'.

fundamental education : a minimum knowledge and skill aimed at assisting children and adults (deprived of any formal education) in understanding the problems of their immediate environment and their rights and duties as citizens and individuals, and in participating more effectively in the economic and social progress of their community.

further education (Brit.) : a post secondary stage for those who have left school. It includes technical education, vocational education, leisure-time occupations, cultural training and recreative activities, organized both on full-time or part-time basis. It does not include university education.

fusion plan : the planning of the curriculum in such a way that the contents of closely related subjects interfuse to form an integral whole.

G

games : organized play activities with definite rules. They are generally organised in terms and played on the basis of competition. They offer opportunities to develop team-spirit, self-control, fair play, special skills and inequalities like perception, judgment, decision, and courage. They provide physical exercise and recreation and encourage sportsmanship.

Games, National Federations of : see 'National Federations of Games'.

gamma hypothesis of learning : one of Dunlop's principles of learning. (see 'alpha hypothesis of learning').

gang spirit : the mental make-up of a group of individuals bound together for a common cause or interest which is probably not approved by society. This spirit is noticeable, in later childhood. Gang spirit requires careful handling at the hands of parents, teachers and social leaders.

Gary plan (U.S.A.) : the name of a plan first instituted in 1908 in the public schools of Gary, Indiana. One of the essential features of the plan is the utilization of the school building throughout the year during day and evening, for both children and adults.

Gates reading test : a test published by the Bureau of Publications, Teachers College, Columbia University designed to measure

reading readiness. It consists of five subsets which measure specific skills important in learning to read. The skills measured are the ability to follow directions, to discriminate between words that are similar, to differentiate between sounds, and to identify letters and numbers by name.

Gayatri-mantra (Ind.) : the most famous and sacred of all mantras addressed to the sun-god *Sāvitrī* to shed its blessing on the earth. The mantra is considered to hold the key to divine knowledge and it reads as follows : '*Om, bhur bhuvah svah ; tat savitur varenyam bhargo devasya, dhimahi ; dhiyo yo nah prachodayāt. Om.*' It means 'Let us meditate upon the ineffable effulgence and glory of *Sāvitrī*, the Divine ; may that inspire us with understanding.'

Gazetteers of India : authoritative source of information about India as contained in the Imperial and District Gazetteers of India which are now being revised. Before the Independence the Gazetteers were last revised in 1909. The information became so out of date that the Government of India launched its programme of revision of the Gazetteers by setting up the Central Gazetteers Unit in 1958 which was charged with the function of revising the first four volumes of the Imperial Gazetteer

(consisting of 26 volumes). State Gazetteer Units were also set up in the States which have now revised and prepared a good number of district Gazetteers.

G. C. E. : see 'General Certificate of Education'.

general assumption : an assumption made to establish the scope, frame of reference and conditions under which an investigation is proposed to be conducted.

General Certificate of Education (Brit.) : [usually abbreviated to G.C.E.] the examination intended for candidates who have completed their fifth school year of a course of secondary education, or whose sixteenth birthday falls on or before 1st September in the year of examination. In 1951, the General Certificate of Education examination at three levels—ordinary, advanced, and scholarship—replaced the School Certificate Examinations. These examinations are conducted by various Boards, and co-ordinated by the Secondary School Examination Council. It is not necessary to pass in a prescribed number of subjects at one and the same examination.

general education : education with a broad view of developing knowledge, abilities and attitudes in conformity to social needs as distinct from education for specialization or vocational education.

General Education Board (U.S.A.) : a board organized in 1902 and incorporated by an act of Congress. This body sets as its objective 'the promotion of education within the United States of America without distinction of race, sex, or creed'.

generalization : applying knowledge and principles acquired in one situation to another situation ; reaching a judgment for the whole on the basis of experience of a limited part ; a conclusion drawn from certain specific instances that apply to a much larger population.

generalizations in the teaching of history : see 'history, generalizations in the teaching of'.

general science : see 'science, general'.

Genetic method : a technique for investigating the origin and course of development of a single individual or a group of individuals characterised by regular, relatively frequent and repeated measurements conducted over a time period.

Genetic theory of language : a viewpoint that language originated from man's spontaneous articulation and not from deliberate imitation.

Genius : a person of exceptionally high mental ability, either general, or in respect of special capacities of a creative or inventive order. There is no universal acceptance regarding the

level of ability to define a genius, although an I.Q. over 140 is taken as an arbitrary indicator. geometric mean : see 'mean, geometric'.

Gestalt : a German word meaning 'configuration', 'form', 'pattern', 'structure', an integrated whole, not a mere summation of all units or parts. Gestalt psychology originated in Germany during the early decades of the present century, mainly as a psychology of perception. The term is principally associated with the names of Max Wertheimer, Kurt Koffka and Wolfgang Kohler.

Gestalt psychology : see 'psychology Gestalt'.

gesture [mudrā] (Ind.) : see 'mudrā'.

g-factor : the term is used for general factor in Spearman's two-factor theory of intelligence, the other factor being the s-factor or special factor. G-factor is common and basic to all the co-related abilities of an individual.

Ghazni, education under Mahmud of (Ind.) : ruled 998—1030. Sultan Mahmud was a great patron of learning though he did not care to encourage the education of people of any other faith. Ghazni became a renowned centre of learning and resort of literary men, poets, philosophers and scientists. Among those who shared the munificence of the Sultan were Utbi, Uzeeri Razi, Asadi Tusi, Firdausi and Unsuri. Unsuri, the greatest poet of his age, a great philosopher, linguist and scientist was appointed a professor of the University of Ghazni. He was entrusted to superintend literature and no work could be brought before Mahmud without his approval. Sultan Mahmud's son Masud kept up the traditions of his father, erected buildings for schools and colleges, promoted the cause of learning so that it might be within the easy reach of the public. Arabic and Persian literatures made a rapid progress. Indian mathematics, astronomy, astrology, philosophy, and medicine were favourite subjects of study with the Muhammadan scholars who translated many Indian works into Arabic and Persian. The next four Sultans who came after Masud were not of any note for their literary interests.

Ghor, education under Muhammad (Ind.) : ruled 1174-1206 Muhammad of Ghor is better known for his conquests than for his love for learning. At the end of his rule when unrest settled down a little he gave thought to the literary progress of his Muslim subjects. He having no children except one daughter took interest in educating his Turkish slaves whom he afterwards adopted. Such an education combined the practical art of government with literary instructions.

gifted child : a child possessing special talents of a high order or very high general intelligence attainable by only 2% of the population of that age. It is popularly thought that a gifted child has inherited gifts of talent but in technical use it is not so implied. The pioneer studies of Terman gave a basic picture of the gifted children surpassing the average ones in intellectual traits, in the desire to know, in originality, determination, perseverance, etc. Gifted children have to be located early and allowed to grow in the best atmosphere and under the best teachers who would be providing challenging educational experiences, goals, enrichment programmes and a variety of extra-mural activities. The reading material offers an unusual opportunity wherein the students need proper direction and encouragement.

gifts, Froebelian : see 'Froebelian gifts'.

girl guides : a movement started in 1910 in England as the feminine counterpart to Boy Scouts. The aims and objects are generally the same. (see 'Boy Scouts'.)

Gita (Ind.) : see '*Bhagvad Gita*'.

goal, learned : see 'learned goal'.

goals, intermediate : see 'intermediate goals'.

Gokhale's Bill (Ind.) : a bill introduced in the Imperial Legislative Council on 16th March 1911 by Gopal Krishan Gokhale, a member of the Council, 'to provide for the gradual introduction of the principle of compulsion into the elementary education of the country'. On March 17, 1912, the Bill was rejected by 38 votes to 13. A year earlier Gokhale had moved a Resolution in the Council 'that a beginning should be made in the direction of making elementary education free and compulsory throughout the country, and that a mixed commission of officials and non-officials be appointed at an early date to frame definite proposals. Gokhale, however, withdrew the Resolution on receiving an assurance from the Government that the question would be considered. But seeing the indifference of the Government, Gokhale had to introduce this Bill.

Government of India's Resolution (1904) on Educational Policy : see 'Educational Policy, Government of India's Resolution (1904) on'.

Government of India's Resolution (1913) on Educational Policy : see 'Educational Policy, Government of India's Resolution (1913) on'.

government, student : student self-government ; any plan where representatives of the students generally elected participate in the day-to-day school administration like school cleanliness and supervision of matters of conduct.

Grace Arthur's point performance scale : a performance scale designed by G. Arthur in 1925 and restandardized in 1928.

grade : the administrative division of the school indicating the educational level of the pupils ; year level of the curriculum ; class (e.g. class VII). In a different connotation it means a rating of a pupil's achievement generally in terms of letters like A, B, C, D, E or percentage.

graded approach : an approach to teaching in which the subject matter is so arranged or presented that the learner successively moves from easier steps to more difficult ones.

graded vocabulary : see 'vocabulary, graded'.

grade placement : assigning a book, subject matter or problem to the appropriate grade or class after evaluating its level of difficulty. The term is also used to denote the allocation of a student to the specific grade or class for which he is found fit.

grade skipping : see 'skipping, grade'.

gradualism : the theory that development proceeds in a very slow, fine, imperceptible and regular manner rather than in an erratic, and sudden manner.

grammar, functional : that aspect of grammar which is helpful in learning the current usage of the language rather than the rules and principles that govern the language.

grammar and structure, research on teaching : In the old traditional method grammar was taught as generalizations or 'rules' ; in modern courses, the student learns the grammatical structure through practising speech patterns with controlled variations. Though the effectiveness of the 'pattern practice' has been established by the development of language laboratory procedures and teachers' guide books based on past experiences, yet there has been little empirical research to prove that the pattern practice is the best method of teaching grammar. Studies have shown that many grammatical errors are due to the use of analogies, and therefore, students should be particularly, told about the peculiarities as 'inconsistent' structures whenever introduced. Still better it would be to get the students form grammatical habits, but, again, no useful research is available to guide as how to teach grammatical habits. Research is also needed to decide the most efficient distribution of time among repeated listening, repeated pattern practice and active creation of new material on structural pattern already learned. Research has also to answer, among many other things, what should be done with grammatical mistakes and wrong structural responses.

grammar method : a method of learning a foreign language through intensive mastery of the rules of grammar.

grammar school (*Brit.*) : a secondary school providing an academic curriculum, particularly suited to prepare pupils for entry to the universities or professions. Students usually remain at school until sixteen years of age. Some stay till they are seventeen, eighteen or nineteen.

grant-in-aid : sum of money paid by one body to another towards the cost of a service, e.g., the Ministry of Education or State governments pay grants-in-aid to local educational authorities or institutions to meet a portion of their total expenditure for providing the educational services. The grant formula or the basis of calculation depends upon the educational policy.

grant, percentage : see 'percentage grant'.

grants, matching : see 'matching grants'.

graph, line : see 'line graph'.

graphic method : a method of comparing numerical data, solving equations and exhibiting statistics by means of lines or diagrams; also called graphic representation.

graphic representation : see 'graphic method'.

great-man theory : theory that history is made largely through the influence and action of great men and therefore the best way to study history is to study the life and work of these great men.

gregariousness : being together in groups, desire to be with others. It is a human tendency to live in groups and feel a sense of satisfaction and security in the company of people having kinship. Some hold the tendency to be instinctive.

Grihasthya (*Ind.*) : the second of the four stages into which the life of an individual was divided. (see '*āshrama*').

group, control : see 'control group'.

group, study : a small group of students formed for independent study, inside or outside the school.

group activity : see 'activity group'.

group discussion : a teaching tool in which a small group of eight to twelve students participates. The group usually sits in a circle where everyone more or less faces everyone else. An ordinary class of thirty or forty can be divided into four groups or committees to discuss a particular problem. The small group could select a temporary leader. Group division must be recorded by some members of the group.

group dynamics : interactions among the individual members of a group engaged in some cooperative activity.

group-factor test : a type of intelligence test which helps to identify several aspects or factors of mental ability present in more than one test in a set of tests.

group guidance : phases of a guidance programme carried on with groups rather than individuals, such as class talks and discussions, film shows, conferences etc.

group ideology : a set of beliefs, values, and standards held by a majority of the members of a group. The ideology is formed through constant group interaction and it helps to regulate group behaviour.

grouping : the process of classifying and tabulating data into class intervals.

groups, equivalent : grouping of the subjects in such a manner that they are regarded of equal merit or ability for the purpose in hand. The groups are so selected that they have the same maximum and minimum and mean scores and deviation.

groups, matched : see 'matched groups'.

group test : a test that can be administered to a number of testees at the same time.

group therapy : a specialised technique of psychotherapy, using the process of group interaction and consisting of a group of patients discussing their personal problems under the guidance of a therapist.

growth : an increase in magnitude of an organism or range of its functions; gradual change towards a more developed or mature state. (see 'development'.) 'Educational growth' implies changes towards educational goals or objects or the result of learning or education.

growth, linguistic : the development of ability to use a language.

growth, professional : development of knowledge, skill, insight, and efficiency of a teacher so that he becomes a successful and effective teacher.

guidance : systematic assistance to pupils to help them to assess their abilities and liabilities and to select opportunities and facilities that will give maximum satisfaction in school (educational guidance) or in his life work (vocational guidance); a process of dynamic interpersonal relationship designed to influence the attitudes and behaviour of a person, helping the students to adjust most effectively to their environment and to develop to their potentialities.

guidance, educational : see 'educational guidance'.

guidance, group : see 'group guidance'.

guidance, personal : see 'personal guidance'.

guidance, social : see 'social guidance'.

guidance, vocational : see 'vocational guidance'.

guidance movement in India : In 1938 the section

of Applied Psychology in the Department of Psychology of Calcutta University was established to carry out research in testing; a private Vocational Guidance Bureau was set up in Bombay in 1941 which led to the establishment of the Parsi Panchayat Vocational Guidance Bureau in 1947; in 1945 Patna University started its Department of Psychological Services and Research; the U.P. Government established the first State Bureau at Allahabad in 1947; in 1954 was established the Central Bureau of Educational and Vocational Guidance by the Ministry of Education, Government of India; in 1956 an All India Educational and Vocational Guidance Association was formed which is affiliated with the International Guidance Association; the CBEVG has now become a Department of the National Council of Educational Research and Training.

guides, girl: see 'girl guides'.

guild school: a type of school which was run by merchants and craft guilds during the later Middle Ages.

guna (Ind.): [lit., attribute or property of a thing] a term extensively used in many branches of Indian learning. In *Vaisheshika* philosophy, there are 24 *gunas*, 16 inherent in substance and 8 inherent in the soul. In *Sankhya* philosophy *guna* refers to the three constituent attributes or principles of *Prakriti*, viz., *Sattva*, *rajas* and *tamas*. (1) *Sattva* is 'goodness' inherent in purity and brightness, intelligence and reality. (2) *Rajas* is 'passion' inherent in movement, force and energy and is activating power behind the other two *gunas*. (3) *Tamas* is 'darkness' inherent in matter, inertia and gloom. In every individual all the three *gunas* exist in varying degrees. (also see *sattva*, *rajas*, and *tamas*.)

Guptas, education under (Ind.): ruled 3rd, 4th and 5th centuries A.D. The Gupta rulers especially, Samudra Gupta and Chandra Gupta II (Vikramaditya) were persons of literary taste who patronised literary men irrespective of their caste, creed or religion, which resulted in the production of a literature of a very high order. Buddhist and Jain scholars got equal respect. The country enjoyed a cultural progress perhaps never experienced before. The Allahabad Pillar Inscription gives evidence that Samudra Gupta was a past master in poetry.

guru (Ind.): common designation for a teacher or spiritual preceptor. In the ancient educational system the *guru* received his pupils in his own hermitage or house as a member of his own family. Such a membership on the one

hand constituted a constant stimulus to the ideals to which one was dedicated and on the other hand operated as a protective sheath against unwholesome influences.

gurudakṣhiṇa (Ind.): [lit., teachers' honorarium] In ancient India teacher was under no mercenary motive which could impel him to teach. Normally he charged no fees but often accepted offering or *gurudakṣhiṇā* from the pupil on the completion of his studies. (also see 'tuition fees in ancient India'.)

Gurukul (Ind.): an ancient residential institution with a kind of settlement of 'Gurus', learned scholars and preceptors, where students from different places gathered to learn the Vedas and acquire knowledge. There was no entrance examination and no fees, but a student coming from a royal family used to offer some gold or silver.

Gurukul Kangri: see 'Gurukul University'.

Gurukul University (Ind.): the institution founded by the Arya Pratinidhi Sabha, Punjab, in 1902 which grew into a university from a small elementary school. It refused to seek government grants as it wanted to have an honourable independence, free from any government control, for achieving its noble and national objectives. In 1924, it was shifted to Kangri so that it could work in 'sylvan solitude' away from the 'uneducational influences of city life'. Students are admitted between the ages 6 and 8, and they pursue studies for 14 years to become a '*Snātak*' or graduate. A degree of '*Vāchiaspati*' or doctorate is awarded after a further study of 2 years. The Gurukul Branch for girls is located at Dehradun. [Gurukul means the 'home of the teacher'.] The fundamental principles of the institution are: (1) Education in residential institution; (2) Free education along with free lodging and boarding; (3) Equality of treatment; (4) Developing qualities of endurance and hardship; (5) Emphasis on *Brahmacharya* and character building. The University is popularly known as Gurukul Kangri.

Gymnasium: a large room or building devoted to physical education activities including systematic physical exercises and indoor games. In another context, in some European countries like Germany, Sweden, Denmark and Holland the term implies a type of secondary school with a classical curriculum.

gymnastics: calisthenics and physical exercises by help of apparatus, as distinguished from games, sports and athletics.

H

habit : an acquired or learned behaviour that has become easy, automatic or relatively fixed by repetition. A teacher is concerned with the formation of useful and socially accepted habits and with the elimination of undesirable ones. In the formation of habits stress should be laid both on repetition and interest. Motivation towards an act is of great importance, for the habit formed under compelling force may disappear with the removal of the force.

Hadow Report (Brit.) : any one of the three reports issued by the Consultative Committee of the Board of Education, England under the Chairmanship of Sir W.H. Hadow—'*Education of the Adolescent*' (1926), '*Primary School*' (1931), and '*Infant and Nursery Schools*' (1933). The first report is generally referred to as the Hadow Report. It recommended a complete break at the age of eleven-plus between primary and secondary education, the institution of secondary education for all children after six years of primary education, and the raising of the minimum school-leaving age to 15. It advocated equal status between modern schools and grammar schools and paved the way for the tripartite organization of secondary schools. The reorganization of schools began on 'Hadow lines' in the 1930's and the changes were formalized by the 1944 Act, but the leaving age was not raised before 1947.

hall, detention : see 'detention hall'.

hallucination : a false perception which one is compelled to imagine as real though adequate stimuli for such a perception do not exist. It is an abnormal phenomenon, though normal persons sometimes have such an experience.

handbook, student : a booklet for the use of students providing information about the institution, curriculum offered, school activities, fees, dress code, personnel services, etc.

handbook, teachers : see 'teachers' handbook'.

handcraft : handicraft ; the term is now widely used and is regarded an improvement over the word 'handicraft'.

handicap : any defect that renders achievement more difficult. Handicapped children may be classified into four categories : (i) the physically handicapped, (ii) the mentally handicapped, (iii) the socially handicapped, (iv) persons with combinations of physical, mental or social handicaps. A handicapped child may be defined as a child whose physical, mental, emotional, educational or social conditions place him at a disadvantage in comparison with normal

children.

handicapped children : see 'handicap'.

handwriting : the act of writing characters by hand, differentiated from drawing which uses pictorial forms. The teaching of handwriting includes factors like accepted front position of the body, working positions of the fore arm, hands and fingers, proper eye distance, effective incentives through comparison with standards, approval, awards, recognition of good penmanship, correct spacing and letter forms, etc. Comparative values of cursive and manuscript writing may be debated, but experiments have shown to a certain extent that the young children can use manuscript writing with more ease and speed while the older ones gain speed in cursive writing.

harmonie mean : see 'mean, harmonic'.

Harrow School (Brit.) : a famous Public School founded and endowed by John Lyon who made special provision for the encouragement of archery at the school. It was opened in 1615. Many of England's eminent men received their education at Harrow, among them were Theodore Hook, Lord Byron, Sir Robert Peel, Lord Palmerston, Mr. Baldwin, and Mr. Churehill. Jawaharlal Nehru, the late Prime Minister of India, was a student of this school during 1905-1907.

Harsha, education under (Ind.) : ruled 606 A.D. to 647 A.D. Learning was greatly honoured by the government. Education was widely diffused especially among the Brahmans and numerous Buddhist monks. King Harsha was himself an accomplished calligraphist and an author of reputation. Among the three plays written by him, 'Nagananda' is considered to be one of the best works of the Indian theatre. Evidently, he was a liberal patron of literary merit. Bana was the greatest ornament of the literary circle at Harsha's court. Hiuen Tsang, the famous Chinese scholar, who stayed for many years during his reign is stated to have carried with him from India no less than 657 distinct volumes of manuscripts. Yuan Chwang states that Harsha used to earmark a fourth of the revenue from the crown lands for rewarding men of intellectual distinction. Scholars like Jayasena, Bana, Mayura and Mastanga-Divakara received his patronage.

Hartog Committee (Ind.) : a sub-committee appointed by the Simon Commission in 1928 under the chairmanship of Sir Philip Hartog to

review the position of education in India. It regretted the slow progress of literacy and a high percentage of failure at the Matriculation Examination which dominated the secondary education. It recommended that there should be more diversified curricula in the schools and a large number of pupils intending to follow certain avocations should stop at the middle school stage.

Hatha-yoga (*Ind.*) : one of the various forms of Yoga primarily concerned with breathing exercises and secondarily with other bodily training and disciplines. It has a certain leaning towards occultism. There are eight stages for realizing the goal : (1) Yama (external control, or abstinences), (2) Niyama (internal control through observances), (3) Asana (bodily postures), (4) Prāṇāyāma (breath control), (5) Pratyāhāra (control of senses), (6) Dhāranā (concentration), (7) Dhyāna (meditation), and (8) Samādhi (a state of super-consciousness). This particular form of Yoga is popularly mistaken as Yoga in general. It is widely considered as a necessary prelude to rāja-yoga. The syllables 'ha' and 'īha' respectively represent inbreathing and outbreathing, called the sun and moon breaths symbolizing the polarity found in each individual.

head movement : the movement of the head while reading, a sign of defective eye-movement habits.

health, mental : see 'mental health'.

health inspection, daily : a quick inspection at the beginning of the school by the teacher, sometimes assisted by students to check whether nails, faces, teeth and dress of the pupils are clean, for the purpose of developing good health habits.

health service : service included in the school programme for the supervision and protection of the health of pupils.

Healy and Fernald scale : the earliest non-verbal performance scale devised by Healy and Fernald consisting of 22 miscellaneous tests. Among the more important performance tests were Introductory Picture Form Board, Construction Puzzle (A), Construction Puzzle (B), Puzzle Box.

hearing aid : any device to help the deaf or the hard of hearing through amplifying sound or increasing bone conduction.

hebephrenia : a state characterized by childish and regressive behaviour, mannerisms, hallucinations and delusions. The hebephrenic person may behave in almost every way as though he were a small child.

Hebraic concept of education : For the Hebrews

the end of education was to make faithful and obedient servants to a personal and living God and thereby to assure harmony and cooperation in civic life. The most important element in their education was moral discipline. Education in Palestine was universal. It is interesting to note that Jews were the first to insist upon the education of the whole people and were willing to establish schools for this purpose. The mother was the teacher of the girls. They were taught to spin and weave, to prepare food, to sing and dance and to look after the work of the household. The mother had a high place in the Jewish home. Vocational training was considered very important. The Hebrews honoured manual labour.

hedge school : the historical origin of the term goes back to the 18th century when Irish Roman Catholic children and teachers gathered in open field near the hedges for teaching purposes, as repressive laws did not permit their schools. The term was later used for any poor school conducted in an irregular way or place.

hedonics : a branch of psychology dealing with the nature, origin, effects, and relations of pleasure and pain.

hedonism : a point of view concerning the highest good in life according to which man's actions are determined primarily by the seeking of the pleasant and the avoidance of the unpleasant.

Hegelianism : the philosophy of Hegel (1770-1831) who attempted to reconcile modernism as implied in subjectivism, individual freedom and change with medievalism as reflected in objectivism, universality and the eternal. Hegel believed in a spiritual entity of an eternal being as the ultimate basis of all being and meaning.

height age : height in terms of averages or standards for the different ages ; height in terms of age norms.

Herbartian steps : the five teaching steps advocated by Johann Friedrich Herbart (1776-1841) and widely accepted in teacher education in the nineteenth and early twentieth centuries : 1. preparation, 2. presentation, 3. comparison and abstraction (association), 4. generalization and 5. application.

herd instinct : the tendency on the part of various species, animals and human beings to live together in groups or to herd together.

heredity : the sum total of characteristics biologically transmitted from parents to offspring. Heredity manifests traits which are potentially present from birth, as the Mendellians and the Galtonians held that each of us is an omnibus on which ride all our ancestors. Hereditary

determination is however modified by the influence of the environment. The actual trait manifested by an individual is the outcome of an interaction between the heredity traits and environmental conditions, between nature and nurture.

Her/His Majesty's Inspector of Schools (Brit.) : [usually abbreviated to H.M.I.] a civil servant in the Ministry of Education recruited from the teaching profession and appointed by the Crown. In England the Inspectorate is headed by a senior Chief Inspector who is assisted by six Chief Inspectors, each in charge of a special department of national education. For regional supervision and inspection, England is divided into ten educational divisions, each under a Divisional Inspector; and each division is further divided into educational districts, each under a District Inspector.

heritage social : the totality or complex of customs, ideas, ways of life, usages, languages, laws, organizations, institutions, and in short, the whole social and ideational environment that serves as the base for the culture of the group and is available to an individual. It is passed on and perpetuated with some modifications from generation to generation.

hermitage [āshrama] (Ind.) : see 'āshrama'.

heterogeneity : the quality of any group of items that show marked dissimilarity.

heurism : the theory helping pupils to discover things for themselves, instead of being told.

heuristic method : [derived from the Greek word 'henisko', lit., to find out] the term essentially synonymous with problem method. The principle of the method is to arrange the work so that the pupil discovers laws and principles for himself, rather than learns that from information supplied by the teacher.

heuristic method in mathematics : see 'mathematics, heuristic method in'.

higher education : includes all education above the level of the secondary school available in colleges, universities, professional colleges, technical institutes, etc. In England, the term is administratively obsolete though still in use to indicate academic education above secondary level; the term 'further education' has taken its place for denoting the post secondary stage, including professional and technical education'.

Higher Education, Committee of Members of Parliament on (Ind.) : see 'Committee of Members of Parliament on Higher Education'.

Higher Education for Rural Areas, Committee on (Ind.) : see 'Committee on Higher Education for Rural Areas'.

Hindola-raga (Ind.) : a *rāga* (a class of modal

melodies) to be sung in the spring at midnight or dawn. It is associated with feelings of love.

Hinduism : one of the great religions of the world, which is difficult to define for its very comprehensiveness and unceasing growth covering the whole stream of Indian thought whose sources go back to very ancient times. It has no single 'Church', no common creed, no universally accepted practices and dogmas and no uniformity of worship. It has a limitless capacity to accommodate all shades and patterns of its main beliefs and deviationary types of worship within the religious system. Broadly, certain features like reverence for the *Vedas*, belief in God in some form, ritualism, belief in *guru* or spiritual preceptor and belief in reincarnation help to distinguish it from other religions. Hindu view is broad and catholic regarding the concept of Reality, as form with attribute, or attribute without form, or neither form nor attribute.

Hindu temple colleges (Ind.) : Hindu temples becoming centres of higher education. Famous examples are : Salogi Temple College in Bijapur district which flourished during 10th and 11th centuries and offered free boarding, lodging and Vedic learning to 200 students from endowments received for the purpose ; Ennāyiram Temple College in South Arcott district which existed at the beginning of the 11th century and had 340 students and 16 teachers ; Tiruvorriyūr Temple College established in 13th century in memory of Pāṇini for the teaching of Pāṇini grammar and having more than 450 students.

histogram : a graphic representation of the frequency distribution formed of a series of rectangles of width proportional to the width of class-intervals, and of areas or heights proportional to the frequencies represented. Class-intervals should be equal for using a histogram. It is also called block diagram, column diagram, or frequency histogram.

historical research : the accumulation of facts in relation to a particular time sequence to determine whether certain events (or what events) in history actually happened.

history, generalizations in the teaching of : The authors of history textbooks turn to generalizations for compressing a great deal of information into a few words, necessitated by the shortage of space due to the inclusion of pictures, charts, maps, end of chapter summaries, exercises and teaching aids. The author understands his own generalizations because he has the background information on which they are based, but the student sees no further into the generalizations than his knowledge of details

extends. The classroom teacher comes to his rescue by advancing explanatory sketches and interpretations with reference to the generalities. This implies that the history teacher should have time, adequate knowledge of his subject and unbiased approach to historical events.

history as actuality : an approach stressing that history consists of actual facts and conditions both of the past and the present, recorded or unrecorded.

history as record : an approach stressing that history consists of past records available in any form, symbols, coins, documents, monuments, etc.

history as thought : an approach stressing that history is the selection, presentation and interpretation of recorded past events.

history of adult education in India : see 'adult literacy movement (before 1921)' ; 'adult literacy movement (1921-37)' ; 'adult literacy movement (1937-47)' ; and 'adult education movement (after 1947)'.

history of Indian sculpture : see 'sculpture, history of Indian'.

history of primary education in India : see 'primary education (1854-1902)' ; 'primary education (1902-1921)' ; 'primary education (1921-1937)' ; 'primary education (1937-1947)' ; and 'primary education (after 1947)'.

history of secondary education in India : see 'secondary education (1854-1902)' ; 'secondary education (1902-1921)' ; 'secondary education (1921-1937)' ; 'secondary education (1937-1947)' ; and 'secondary education (after 1947)'.

history of technical education in India : see 'technical education (1854-1904)' ; 'technical education (1904-1947)' ; 'technical education (after 1947)'.

history of university and collegiate education in India : see 'university education (1854-1902)' ; 'university and collegiate education (1902-1921)' ; 'university and collegiate education (1921-1937)' ; 'university and collegiate education (1937-1947)' ; and 'university and collegiate education (after 1947)'.

history of women education in India : see 'women education (before 200 B.C.)' ; 'women education (200 B.C.-1200 A.D.)' ; 'women education (1200 A.D.-1800 A.D.)' ; 'women education (1800 A.D.-1854 A.D.)' ; 'women education (1854-1882)' ; 'women education (1882-1902)' ; 'women education (1902-1921)' ; 'women education (1921-1947)' ; and 'women education (after 1947)'.

hobby : an activity through which a person seeks recreation and self-expression and utilizes his leisure time with great satisfaction. It relieves

mental strain after strenuous work. The school is to help the children to cultivate good hobbies which will remain a source of pleasure and relaxation even after school life, though old hobbies may replace new ones.

Holmgren wool test : see 'test, Holmgren wool'.

home, detention : see 'detention home'.

home economics : science and art concerning living in a home, stressing home making, economic efficiency, good relationships, social responsibilities, etc.

home management : a study for making the best use of human and material resources of the home for the optimum development of the family.

home room : a room or a classroom organization presided over by a teacher. The idea of the home room has originated in America. It is based on the assumption that the home room teacher responsible for his group comes to know his group intimately and is able to recognise, evaluate and develop individual interests and capacities. The group reports morning and afternoon for checking attendance and hearing announcements of general educational value. At least one full period a week is devoted to home room activities which may consist of free choice programmes, seasonal programmes, hobbies, guidance work, etc.

homeostasis : the tendency of the body to maintain by itself a balance among various internal physiological conditions, such as temperature, sugar, salt and air.

home work : school assignments to be completed or worked out by the pupil at his home. Home work to be useful should be properly motivated and the need should arise out of the class work. It may help for preparing the next lesson, revising or drilling the old one, completing or supplementing the class work. Sometimes the home work is objected on grounds like—students do it by the help of parents or copy it from books or from class mates ; much time is consumed ; uncongenial home atmosphere makes any good work difficult ; monotony smother's interest in the subject.

homogeneity : the quality of any group of items that show similarity or likeness.

honour-matriculation examination (Can.) : the higher matriculation examination at the end of grade XIII, the final year of a 13-year school system, or of grade XII of a 12-year school system, which qualifies a student to enter university with one year's advance standing.

horne : a term adopted by Sir Percy Nunn and defined as : 'the element of drive or urge, whether it occurs in the conscious life of men and

the higher animals or in the unconscious activities of their bodies and unconscious behaviour of lower animals'.

hormic or purposive psychology : see 'psychology, hormic or purposive'.

hormone : a chemical secretion given off by the ductless or endocrine glands. (see 'endocrine glands'.)

HORSA : stands for Hut Operation Raising School-leaving Age. In England when the school leaving age was raised to 15 in 1947, the demand for extra school places (also because of the bulge in enrolment after the Second World War) was partly met by constructing pre-fabricated classrooms known as HORSA.

house : one of the boarding houses of a public school under the supervision of a housemaster. It is also used in another context ; the pupils of a school are usually divided into different small groups called 'Houses' for the whole of their school life. The houses have their own captains and prefects and they organize their own teams which compete among themselves on a house basis.

house system : a system, in schools, of dividing a large group (*i.e.*, the school) into smaller groups, called Houses, each under the charge of a Housemaster for ensuring individual attention and closer contacts, and securing the active participation of each member of the group. The child is lost in an overwhelmingly large group while the smaller group helps to draw out the best in him. The house system involves the development of a family spirit where members of different ages (house being a vertical cross-section of the school) and varying talents help one another to grow up, jointly working for the welfare of the whole house. The idea of the 'House' is inherent in the public boarding schools in England where pupils live in separate houses and have their own community life.

humanism : in general, any philosophy stressing the importance of man in relation to the cosmic order. Historically, it is that philosophy of education which derived its initial impetus in the fourteenth, fifteenth and sixteenth centuries from the revival of learning during Renaissance. It emphasized the study of Roman and Greek languages, literature and civilization.

humanities : subjects which according to the classification used by Unesco includes, archaeology, history, languages, letters, library science, philosophy, psychology, theology, and similar subjects.

Haman Relations, Commission on (U.S.A.) : a commission founded in 1935 by the Progressive

Education Association to study ways and means of helping young people and their parents for a better understanding of the problems of human living. The activities of the Commission includes (1) the publication of books, (2) the production of motion pictures, and (3) the presentation of radio programmes concerning problems of group living in a democracy. It is believed that democracy is essentially a plan of human relations, and effective human relations further the cause of democracy.

Humayun, education under (Ind.) : ruled 1530-1539 and 1555-56. He loved to study astronomy and geography, was fond of the company of learned men, and he himself composed good verses. In his reign the learned and religious men took precedence over the nobles. He was a great lover of books and even during expeditions carried a select library with him. When he came to the throne of Delhi the second time, he transformed Sher Mandal (a house of pleasure in Sher Shah's time) into a good library. Unfortunately, it was here that he met his death slipping from the steps of the staircase. Humayun built a *madrasah* at Delhi, of which Shaikh Husain was a professor. There are two examples of educational institutions founded by private individuals—a college near Chunar and a school near Agra. The famous Humayun's Tomb at Delhi was at one time used as a college of some importance.

Hunter Commission (Ind.) : the first Indian Education Commission appointed by Lord Ripon in 1882 to report on the whole question of education in the country. It recommended that the government should take over the entire responsibility of primary education, leaving secondary education to private enterprise on grant-in-aid basis, and that the high school should provide two avenues, one leading to the university and the other of a more practical nature to fit the youths for commercial, vocational and non-literary pursuits. It is also known as 'Indian Education Commission'. (also see 'Indian Education Commission'.)

hygiene : the study and practice of maintaining health of the individual (personal hygiene) or the community (community hygiene).

hygiene, mental : see 'mental hygiene'.

hyperthyroidism : a physiological condition involving the overactivity of the thyroid gland. Hypothyroidism is its just opposite where the thyroid gland is underactive.

hypnosis : a trance-like state resembling sleep in which a person is extremely susceptible to the suggestion of the hypnotist.

hypochondriasis : a neurotic reaction in which a

person is excessively concerned about his health or constantly complains of unfounded ailments.
hypothesis : a guiding idea, tentative explanation, or statement of probabilities which is not yet proved but helps to guide observation or

collect further information for decision making, problem solving or research. Theory is a developed hypothesis with substantial facts.

hypothesis, null : see 'null hypothesis'.

hypothesis, testable : see 'testable hypothesis'.

I

IBE : see 'International Bureau of Education'.

id : employed by Freud to designate the impersonal mass of interacting energies or forces constituting the unconscious in a strict sense.

idealism : a system of philosophical thought which emphasizes mind or spiritual reality as a prominent principle of explanation.

idealistic ethics : see 'ethics, idealistic'.

ideal self : a person's concept of what he ought to be, how he ought to act ; the set of values which he should hold for himself. It is significantly influenced by social factors.

ideas, imperative : the ideas or thoughts that persist in the mind of a person in spite of his efforts to forget or subdue them.

identical learning : learning connected with ideas and concepts, as distinguishable from perceptual learning.

identical elements theory : according to it transfer of training takes place to the extent the elements in two situations are identical.

identification : a defence mechanism which involves modelling oneself after another individual or group. Identification enables the individual to incorporate the attributes of the other individual or group, and to display similar behaviour.

identification test : see 'test, identification'.

ideology : a philosophy that guides an organization, government or a social order.

idiot : a feeble-minded person having an I.Q. below 25 and who is therefore usually ineducable. (see 'deficiency mental'.)

IEY : see 'International Education Year'.

ignorance [avidya] (Ind.) : see 'avidyā'.

illiteracy : in a restricted sense, inability to read and write anything ; in a broader sense, the ability to read and write is not sufficient to meet the needs of an adult life.

illustration : the use of those aids which make ideas clear to children and help them acquire correct knowledge. Illustration helps in simplifying and giving vividness to explanations. Illustrations elucidate interest and impress children. Illustrations may be of two types : verbal

illustration consisting of verbal examples, analogies, comparisons, similes etc., concrete illustration consisting of actual objects, specimens, models, pictures, diagrams, blackboard, sketches or graphs and experiments. Illustrations must be chosen very carefully.

image : refers to a person's concepts, attitudes and preferences towards some object like school, nation or motherland. In this sense it is the cognitive aspect of a sentiment attached to an object. Drever defines it as 'our apprehension of an object or objects in the absence of the object or objects themselves which originally determined our sense perception'. 'Self-image' is what one thinks oneself to be. It is a total concept of one's personality, character, status, physical appearance, etc.

imagination : reorganisation of past experiences into different combinations or new patterns of mental images. The processes of imagination can be classified according to their functions. Anticipatory imagination represents the movement towards a future event (movement image), or the event itself (goal image). Fanciful imagination contains images of fancy, and reproductive or memory imagination is a reproduction or repetition of previous experience (memory images). Creative or constructive imagination is clearly noticeable in the works of a painter, poet, architect or engineer. Since it is of great educational value, the schools should encourage the students to take part in such activities which involve creative or constructive imagination.

image, father or mother : the idealized conception of one's father or mother that generally originates in childhood ; the influence of father or mother that one unconsciously carries throughout one's life.

imbecile : a feeble-minded person having the usual range of I.Q. from 25 to 49 and who is incapable of managing his affairs (see 'deficiency mental'.)

imitation : the conscious or unconscious attempt of an individual to reproduce or copy in his thought or behaviour the same pattern of

thought or behaviour perceived in another.
incidental learning : learning without intending to do so, or without formal instruction. It may incidentally occur when other learning takes place. Attitudes, emotional habits, and mannerisms are attained in most cases without conscious intent, though difficult to acquire through deliberate efforts. On the other hand complex skills cannot be learned without deliberate attempt. The term 'concomitant learning' or 'collateral learning' is used in a synonymous sense.

incidental sampling : see 'sampling, incidental'.

incidental teaching : see 'teaching, incidental'.

incomplete-man test : see 'test, incomplete-man'.

independent school (Brit.) : a school which does not receive any financial support from the Government or the Local Education Authority but has to be recognized and inspected by the Ministry of Education. The Public Schools, and various types of private schools fall under this category. They are entirely self-supporting.
index, athletic : a numerical value calculated from various physical measurements and achievements of an individual so as to make a rough judge about his ability in competitive sports and games.

Indian dance styles : see '*Bharat-nūṭyam*', '*Kathak*', '*Kathakali*', and '*Manipuri*'.

Indian Education Commission (Ind.) : the Commission appointed in 1882 by Lord Curzon under the Chairmanship of William Hunter to enquire particularly into the manner in which effect had been given to the principles of the Despatch of 1854 and to suggest measures for carrying out the policy as laid down therein. The Commission reiterated the principles which had already been accepted years ago in Wood's Despatch. Among the major recommendations of the Commission were : (1) strenuous efforts to be made in the sphere of elementary education ; (2) control of primary education to be made over to District and Municipal Boards ; (3) indigenous schools to be encouraged ; (4) local funds to be utilised mainly for primary education ; (5) at least one model high school to be established in some districts where people may not be able to establish schools for themselves with grant-in-aid ; (6) missionary enterprise to occupy only a secondary place in Indian education. The Commission failed to see the financial implications of its recommendations. However, the historical value of this document is incalculable. It is also known as Hunter Commission.

Indian mathematics : see 'mathematics, Indian'.

Indian museum : the oldest museum of India

located at Calcutta and maintained from the funds provided by the Government of India.

Indian musical instruments : see '*Vādya*'.

Indian music history : see 'music history, Indian'.

Indian National Commission for Cooperation with Unesco : an agency, established in 1949 on an interim basis and in 1951 on a permanent footing, by the Government of India with the objectives of (1) promoting the understanding of the aims and objects of Unesco ; (2) advising the Government on matters relating to Unesco ; and (3) acting as a liaison agency between Unesco and the institutions working for the advancement of education, science and culture. The Minister of Education is the President of the Commission which comprises 5 sub-commissions, viz., Education, Natural Sciences, Social Sciences, Cultural Activities and Humanities and Mass Communication.

Indian Olympic Association : the National Olympic Committee for India recognized and approved by the International Olympic Committee. Under the Charter of the International Olympic Committee, every country sending competitors to the Olympic Games must have a National Olympic Committee independent and entirely removed from all political, religious and commercial influences, and recognized and approved by the International Olympic Committee.

Indian Parliamentary and Scientific Committee : a Committee set up in 1961 to study and examine the problem of Science Education in schools with a view to finding out the position of the organization of the science courses in the primary, middle and high/higher secondary schools. The report entitled 'Science Education in School' was published in 1964. Important recommendations of the Committee are—(i) Science education to be made compulsory in the primary schools ; (ii) General Science courses to be started in middle schools ; (iii) Science to be made compulsory at the High School Stage ; (iv) School curriculum to be modernized ; (v) Textbooks to be prepared by the panel of experts ; (vi) great emphasis to be given to summer institutes for secondary school teachers ; (vii) Science museums to be given more attention ; (viii) Inexpensive and simple apparatus to be prepared ; (ix) Hobby workshops to be introduced ; (x) Handbook to be prepared for teachers of science which should give instruction to teachers in regard to the teaching of their subjects.

Indian scripts : see 'scripts, Indian'.

Indian Universities Act (1904) (Ind.) : the Act whose main provisions were : (1) Reduction in

the size of the Senate and the introduction as the principle of election; (2) Adequate representations of university teachers on the Syndicate and the Syndicate's statutory recognition; (3) Strict conditions for the affiliation of colleges which should be periodically inspected; (4) The Government's right to make amendments and additions while approving the rules framed by the Senate; (5) Power of the Governor-in-Council to define the territorial limits of the universities. This Act was the outcome of a bill put forward by Lord Curzon on the basis of the recommendations of the Indian Universities Commission (1902).

Indian Universities Commission (Ind.): a Commission appointed by Lord Curzon in 1902 'to inquire into the conditions and prospects of the universities established in India; to consider and report upon any proposals which have been or may be made for improving their constitution and working; and to recommend to the Governor-General-in-Council such measures as may tend to elevate standard of university teaching, and to promote the advancement of learning'. Among the important recommendations of the commission were: (i) New Universities should not be established; (ii) Existing Universities should be reorganized as teaching bodies; (iii) The Senate and Syndicate should be recognized; (iv) The territorial jurisdiction of each university should be precisely defined; (v) Rules of affiliation should be strict and affiliated colleges should be strictly supervised; (vi) There should be a managing committee for every college; (vii) Hostels should be built for students.

indirect expenditure: expenditure incurred on direction and supervision, building, furniture, scholarships and other miscellaneous items.

indirect teaching: see 'teaching, indirect'.

individual differences: wide differences in school children in physique, rate of development and growth, intelligence, achievement and attitude. Even when I.Q.'s are similar, they differ in types of intelligence and intellectual functioning. These are significant in deciding the kind and extent of learning that takes place. A knowledge of the nature and degree of individual differences is essential if the teacher is to improve the education of all children because the learning situation has to be adjusted to the individual needs. Adjustments will have to be made in grouping of pupils, in curriculum and methods of teaching, and for high ability, low ability and special ability.

individualized instruction: study and teaching methods that help a pupil to proceed by himself without help from the class or very little

help from the teacher. The pupil makes progress by individual study instead of class or group discussion and the question and answer method. The stress on individual differences and the need of the pupil to advance at his own rate lend support to individualized programmes which make wide use of unit assignments based on individual differences, practice exercises, unit tests and detailed work-books giving steps and direction in full. Project method, problem method, Winnetka, Dalton and Morrison plans are also utilized.

individual psychograph: a profile of an individual's traits and abilities, made comparable by reducing them to a common scale.

individual psychology: see 'psychology, individual'.

indoctrination: an attempt to inculcate or fix a certain pattern of beliefs in the mind of an individual. The teaching-learning situation provides ample opportunities for such an inculcation. In a narrow sense, it implies the fixing of a doctrine—social, political or religious—in the mind of a people at the exclusion of other doctrines so that it may not be exposed to individual's own independent inquiry and critical judgment.

induction of teachers: the programme of gradual introduction of teachers with the life, work and condition of the school so that they may successfully adjust themselves to the new situation.

inductive discovery method in mathematics: see 'mathematics, inductive discovery method in'.

inductive method: leads to the discovery of generalizations, rules, principles, laws and definitions. A teacher is said to be teaching through this method when he helps his pupils to generalize in mathematics, science, grammar and other subjects. The inductive method requires (1) recognition of a problem, (2) gathering of facts by observations and experiments, (3) formulation of hypotheses, (4) testing the hypotheses, (5) formulation of the accepted hypotheses, and (6) further verification of the principle by applying it to varying situations. This method is correlative with the deductive method. There is no pure inductive and deductive method in life situations, for the solution of problems require the combination of both.

inductive reasoning: reasoning that proceeds from the specific to the general, from parts to the whole. It is generalizing on the basis of known facts and observations.

industrial psychology: a field of specialisation in psychology concerned with methods of selecting, training, counselling, and supervising personnel in business and industry.

inferiority complex : a repressed unconscious fear of one's inferiority resulting in different kinds of distorted behaviour. A person with inferiority complex is often shy and lacks confidence in himself. It may be distinguished from inferiority feeling arising out of a sense of inferiority about which one is conscious.

information, occupational : see 'occupational information'.

informational approach : an approach to teaching in which relevant information is supplied to prepare the appropriate background for teaching a certain topic.

information test : see 'test, information'.

inheritance, law of ancestral : Francis Galton's (1822-1911) theory that one-fourth of any individual's characteristics are derived from each parent and one-sixteenth are derived from each grand-parent.

inhibition : restraining or stopping an impulse from functioning by an opposite impulse from within ; the prevention of instinctual process from coming into consciousness.

inhibition, retroactive : see 'retroactive inhibition'.

initial interview : the first scheduled interview between a counsellor and counsellee which determines to some extent the success of future interviews.

Initial Teaching Alphabet : [usually abbreviated to ITA] a new beginning reading alphabet invented by Sir James Pitman and pioneered in British schools. ITA is used till the children become confident and fluent in reading it. Then the skill is transferred to reading the traditional orthography of English. The characters of ITA and its spelling rules have been designed to make this transfer easy, once ITA has helped to make a flying start into reading. ITA has a simple and consistent spelling system since it provides one letter for each of the 44 sound units of English. It has only one character for each letter (no different character for a capital letter) which helps the pupil to learn only one visual pattern for a word. In traditional orthography, the word 'bat' may have three different patterns : bat, Bat, BAT.

ink-blot test : see 'test, ink-blot'.

in loco parentis : in place of parents. The teacher may act in place of parents in matter of school or class discipline, but his action has to be within the framework of rules and regulations that guide and direct the school.

insight : a sudden or quick conception of the meaningful relationship of the elements in a situation or problem.

inspection, medical : see 'medical inspection'.

inspectorial supervision : see 'supervision, inspectorial'.

instinct : an inherent tendency or disposition to act in a special manner in response to a special stimulus. McDougall defines it as "an innate disposition which determines the organism to perceive any object of a certain class and to experience in its presence a certain emotional excitement and an impulse to action which finds expression in a specific mode of behaviour in relation to that object". He has identified 14 instincts including instincts of combat, escape, curiosity, mating, self-assertion, acquisition, and laughter. Freud postulated only two instincts—life instinct and death instinct. The concept of instinct has been controversial. Instincts are the real dynamic of behaviour, and therefore can prove of great educational value when modified and sublimated.

instinct, parental : see 'parental instinct'.

instinct theory : the theory that an organism is adequately equipped by its original nature with complex pattern of behaviour for adjusting and adapting to its environment.

institute, rural : see 'rural institute'.

institutional plan : a programme of improvement and development prepared by an educational institution on the basis of felt needs and available resources, within the frame-work of the educational plan of the zone or district. The plan should have the maximum involvement of teachers and the proper co-ordination of all aspects of school work. The major steps in preparing a plan are : Survey of the needs of the resources available in the school and in the community ; preparation of the plan ; and planning the evaluation of the improvement and development programmes.

institutional planning : educational planning at the institutional level within the framework of the district educational plan, with the active involvement of teachers for the improvement and development of the institution. It is a broad-based and decentralized planning process involving the actual workers in the field who will implement the plan. Generally, the planning tends to confine itself to the national and state levels, and the importance of planning at the two lower levels—district and institutional—is not properly highlighted. An integrated process of planning should involve all these four levels—national, state, district and institutional and planning should descend from the top as well as should arise from below. The institutional plans should provide the solid base of their new planning.

instruction : the word is derived from two Latin

words 'in' (meaning—'into') and 'struc' (meaning 'I build'). The concept is of building knowledge and skill into another. It is used in a more restricted sense than 'education'. It denotes a didactic method of dealing with a subject or imparting information, knowledge or skill. Sometimes instruction and teaching are used synonymously.

instruction, individualized : see 'individualized instruction'.

instruction, moral : see 'moral instruction'.

instruction, programmed : see 'programmed instruction'.

instruction, remedial : see 'remedial instruction'.

instructional area : that part of the school or college building where actual instruction is carried on, as distinguished from areas for administrative and auxiliary purposes.

instructional costs : see 'costs, instructional'.

instructional material : anything like text-books, work-books, audio-visual aids, apparatus, chalk, black-board, etc. that help in the task of teaching.

instructional objective : the aim or purpose of instruction.

instructional outcome : the result of instruction stated in terms of pupil behaviour.

instructional supplies : see 'supplies, instructional'.

integration, emotional : see 'emotional integration'.

intelligence : It is more difficult to define than to understand its nature and characteristics. For Binet it was the ability to adapt oneself, to judge well, to understand and reason well. Terman measured it in terms of ability to carry on abstract thinking. Stern viewed it as 'a general adaptability to new problems and conditions of life'. It is popularly assumed that intelligence is inherited but several studies and investigations already undertaken have not yet been able to confirm it.

intelligence, social : see 'social intelligence'.

intelligence quotient : [usually abbreviated to I.Q.] the ratio of the mental age of the child to his chronological age expressed as a percentage. It is calculated by means of the formula, $\frac{\text{mental age}}{\text{chronological age}} \times 100$. A 10-year old child whose mental age has been found to be 11 years on a particular intelligence test, will have an I.Q. of 110. It indicates the rate of child's mental growth. The basic assumption is that I.Q. shows an average annual increase in tests till the ages of 14 to 16 after which for most tests there is little difference. So for persons beyond 16, the chronological age is counted as

16. I.Q. rating of 100 would be considered a normal performance.

intelligence tests : tests to measure intelligence. The intelligence testing movement made an effective appearance in 1916. Alfred Binet's is the pioneering work in this field. All these years intelligence tests have been subjected to careful study. The limitations are now clear e.g. a single test does not give a highly reliable measure ; difficulties to predict mental growth too narrowly from tests or to attempt homogeneous grouping. But in spite of limitations intelligence testing holds an important place in educational work. When test results are considered in conjunction with other data covering physical, emotional and educational growth and home background, they help in understanding the children better.

intensive reading : see 'reading, intensive'.

intensive study : a detailed and thorough study of a subject in all its aspects.

interclass visitation : usually refers to the practice of one teacher's visiting another teacher's class for the quality teaching of both.

interest : one of the important factors in motivating the acquisition of knowledge, information and skills ; the drive that leads the person to his preferences. The term is used with several shades of meaning. A person interested in an object implies that he becomes curious to know it, pays attention to it, learns more about it and a pleasurable feeling accompanies the activity related to that object. The doctrine of interest in education means that learning cannot take place without interest and therefore the interest of the learner should play an important part in deciding the content and method of instruction for different educational levels or stages of development.

interest inventories : inventories designed to measure interests. It is found that men engaged in a particular occupation have a characteristic pattern of likes and dislikes which distinguish them from other men following other professions. This helps to indicate the occupational choices of the students as they check the interest inventories.

interest inventory, vocational : see 'Cleeton's vocational interest inventory'.

interests, many-sided : see 'many-sided interests'.

interfamily environmental differences : see 'environmental differences, interfamily'.

intermediate college (Ind.) : a college imparting instruction at the intermediate stage—the stage following the high school and preceding the first degree course. It broadly covers the age range 16 to 18 and its duration is two years.

As a result of the reorganization of the secondary and university education initiated in 1954, it was decided to abolish this type of institution by adding one year to the secondary stage making it an 11-year course instead of 10, and to add another year to the first degree making it a three-year course.

intermediate goals : subgoals which the individual must successively achieve to reach his final goal. They are set up by the individual when the final goal is remote in time, so that the morale is maintained and the long term effort is sustained till the remote goal is reached.

internal morality : see 'morality, internal'.

International Bureau of Education : [abbreviated to IBE] a centre for information, research and documentation concerning education, founded in 1925 in Geneva, with the object of developing international relations in the field of education. It holds annual international conferences on education and publishes 'Bulletin of the International Bureau of Education' (quarterly) and 'International Year book of Education'. In 1947, Unesco and IBE signed an agreement providing for close cooperation between the two organizations, and since January 1, 1969, IBE has become an integral part of the Unesco, though retaining a large measure of intellectual and functional autonomy.

international educational exchange : a movement of persons from their own countries to other countries for educational purposes. It includes faculty members, research workers, elementary, secondary and university students. This movement is gaining momentum day by day as it provides a valuable educational experience, new ideas, skills, knowledge and attitudes to the visitor.

International Education Year : [abbreviated to IEY] 1970 designated as International Education Year by the General Assembly of the United Nations. The Unesco assumed primary responsibility in collaboration with the other organizations of the U.N., for adopting a programme of action for stepping up national and international efforts for the advancement of education all over the world. The objectives include : functional literacy for adults ; equal access of girls and women to education ; training of personnel for development ; democratization of secondary and higher education ; guided choice in education ; adaptation of education to the needs of the modern world ; development of educational research ; pre-service and in-service training of teachers. IEY serves as a focus for an all-nation analysis of the causes of

the world education crisis and offers an opportunity to all countries to establish new directions to solve them.

International Institute for Education Planning : [abbreviated to IIEP] an international centre, established by Unesco in 1963, for advanced training and research in the field of educational planning. Its initial basic financing was provided by Unesco, the International Bank of Reconstruction and Development and the Ford Foundation. The Institute's aim is to expand knowledge and to supply competent experts in educational planning in order to assist all nations to accelerate their educational development as a prime requirement for general economic and social development. The Institute is located at Paris.

International Literacy Day : 8th September. At the instance of the World Congress on the Eradication of Illiteracy held in Tehran on 8th September, 1965, Unesco recommended to member States that 8th September should be observed as International Literacy Day every year. Accordingly the day is celebrated throughout the world.

International Magna Charta for teachers : the Magna Charta for teachers adopted at the Unesco intergovernmental conference on the status of teachers held in Paris in Sept.-Oct. 1966. The approved recommendation contains 145 paragraphs setting forth minimum standards for the professional, social and economic status of teachers. Chapter headings in the document include—educational objectives and policies, preparation for the profession, further education for teachers, employment and career, rights and responsibilities of teachers, conditions for effective teaching and learning, teachers' salaries, social security and the teacher shortage. The 'recommendation' concerning the Status of Teachers is likely to serve as a statement of minimum standards for the guidance of the participating nations and teacher organizations.

International Olympic Committee : the governing body for the Olympic Games which draws up the general programme of the games, selects the venue for each Olympiad, and lays down a code of amateurism and other qualifications for the competitors.

International Phonetic Alphabet : see 'phonetic symbol'.

interpersonal response trait : a more or less stable and consistent disposition of the individual to respond to other persons in a characteristic way.

interpolation : the process of locating an intermediate point between two known points in

accordance with the rules operating in the given case.

Inter-University Board of India and Ceylon : the Board set up in 1967, and located in Delhi, with the following main objects : to serve as an Inter-University organization ; to act as a bureau of information ; to act as a liaison between universities and the Central and State Governments ; to help universities to maintain their autonomous character ; and to act as the representative of universities of India and Ceylon.

interview : gathering of information by face-to-face contact ; a method and tool of collecting data for research in social sciences.

interview, analytic : see 'analytic interview'.

interview, depth : see 'depth interview'.

interview, focused : see 'focused interview'.

interview, initial : see 'initial interview'.

introspection : the mental process of looking into and examining one's own thoughts, feelings and activities.

introversion-extroversion test : see 'test, introversion-extroversion'.

introvert : a person whose thoughts and feelings are directed inward to himself ; the opposite of extrovert. Jung has extensively used this term to indicate an introvert type of a personality. An introvert is generally shy and reserved and likes to be alone. The outside world does not appeal to him much and he does not show off or assert himself.

intuition : knowledge obtained by instinct ; immediate and seemingly unmediated knowledge ; an idea at once occurring to a person without thinking or reflecting about it.

inventories, interest : see 'interest inventories'.

inventory : a detailed questionnaire that provides specific information about a person's likes, dislikes, habits, preferences, etc. It usually refers to a personality or interest test.

invitational supervision : see 'supervision, invitational'.

inward vocalization : see 'vocalization, inward'.

Isha Upanishad (Ind.) : one of the *Yajur-Vedic Upanishads*, named from its first word '*Isha*'.

It is the shortest of *Upanishads* consisting of 18 stanzas.

Islam : one of the major religions of the world. The term literally means 'Submission'. It implies submission to Allah and his Prophet, and observance of 5 duties : (1) The profession of faith bearing witness that there is one God and Mohammad is His Prophet ; (2) Offering the daily prayers five times ; (3) Giving the legal alms ; (4) Observing the Ramazan or a month's fast ; (5) Making the pilgrimage to Mecca. Those who profess the religion of Islam are called Musalmans or Muslims. The essential dogma of Islam is belief in the absolute unity of Allah and the Prophet hood of Mohammad.

Islamic education : the education with the chief aim of obtaining knowledge of the Islamic religion. In connection with all mosques of importance there are small schools either for the education of the children or for the training of students of divinity. The child who attends such a school is first taught his alphabet and is then made, to write down simple words taken from the Qur'an and then help to learn the chapters of the Qur'an. Amongst students of divinity, called talib'ul-ilm 'seekers after knowledge', the usual course of study includes grammatical inflection, syntax, logic, arithmetic, algebra, rhetoric and versification, jurisprudence, theology, commentaries on the Qur'an and rules of interpretation of laws of Islam. Students in the mosques are generally supported by the people of the locality and sometimes the mosques are endowed with land or rents of shops and houses for the payment of teachers.

ITA : see 'Initial Teaching Alphabet'.

item : the smallest unit of a test (sometimes a test may consist of only one item) ; a question.

item, completion : see 'completion exercise'.

item, test : see 'test item'.

item analysis : process of determining any systematic information, such as discrimination, difficulty, etc., about a test item ; method to determine the effectiveness of a test item whether it is able to discriminate among individuals.

J

Jagaddala (Ind.) : a seat of learning or a university founded by king Rāma Pāla of Bengal in the early part of the 12th century. The university could hardly work for a hundred

years when in 1203 A.D. it was completely demolished by the invasion of Bakhtyar Khilji. Even in this short period it made a substantial contribution to learning through its famous

scholars like Vibhutchandra, Dāna Shila, Shubhakara and Mokshākaragupta.

Jahangir, education under (Ind.): ruled 1605-1628. He was a man of literary taste, was well versed in Persian and had a knowledge of Turkish which enabled him to read the Memoirs of Babur in the original. He wrote his memoirs 'Jahangir-Namah' with his own hand and got several copies of it prepared for wide distribution. A good deal of money was utilized for building and repairing madrasahs and other educational institutions. Agra continued to maintain its reputation as a great centre of learning. Jahangir's love of books caused him to carry a library to Gujarat where he presented several books to the Shaikhs. Through his encouragement, painting reached a great excellence during his reign. Abul Hasan and Mansur were the great painters. Among the learned men of his court mention may be made of: Mirza Ghiyas Beg known for elegant composition and arithmetic; Naquil Khan, the historian; Mu'tamed Khan and Ni'matullah, Jahangir's historiographers; and Abdul Haq Dihlawi.

Jain temples, education in (Ind.): From the beginning of the Christian era Jain temples and *chaityas* became common, and gradually they became centres of instruction. The Jain monks, many of them were great scholars, used to teach not only the novices but also the children of the laity. Jain temples, however, did not develop into public centres of higher education, as was the case with the Buddhist monasteries.

James-Lange Theory: theory of emotions propounded by two psychologists—James in America and Lange in Holland—independently: theories were so related as to appear as one. Emotions are identical with organic changes; but according to this theory organic changes cause emotions, instead of emotions causing organic changes. Commonsense says that we meet a bear, are frightened and then run. The theory says that we run and then get frightened; we feel afraid because we tremble and not that we tremble because we feel afraid. Many have not accepted the theory.

Jamia Millia Islamia (Ind.): one of the national universities of All-India character founded in 1920 at Aligarh, urged by such leaders as Mahatma Gandhi, Maulana Muhammad Ali, Hakim Ajmal Khan, Dr. M.A. Ansari. It shifted to Delhi in 1925. At that time it refused to seek recognition or grants at the hands of the British government, as it preferred 'the hardships and ordeals of an honourable independence' for achieving its noble ambitions. Its objectives

were to broaden the education of the youth on their own cultural heritage, inculcate the spirit of service, tolerance, self-control and self-respect, provide opportunities of self-expression, develop initiative and responsibility, and build character. Dr. Zakir Husain, the distinguished educationist, who became the President of India in 1967, was the Vice-Chancellor of Jamia Millia for 22 years from 1926 to 1948.

Janta Colleges (Ind.): an institution established in the rural areas for providing training for local leadership for the rural population in selected areas: The course usually covers a period of 4 months and provides specialized courses in handicrafts, improved methods of agriculture, animal husbandry, health and sanitation, organization of co-operatives and panchayats.

Jataka (Ind.): a collection of 550 folk tales, riddles and legends, adapted to Buddhist purposes and incorporated in the Pali canon. In each story Buddha appears in one of his previous incarnations. In the beginning of the story a person named Sumedha decides to become Buddha and he undergoes a series of 550 rebirths in various forms—priest, prince, deva, slave, woman, animal and bird. As a white elephant he saws off his tusks to offer to a hunter, as a hare he offers his life to a hungry mendicant, as a parrot he lays down his life for his friends and so forth. *Jataka* stories are among the most important vehicles of Buddhist ethical teaching.

Jaunpur (Ind.): once a great seat of Muslim learning. In the time of Sultan Ibrahim Sharqui (1401-1440) it was the capital of the kingdom of Jaunpur where hundreds of madrasahs and masjids lay scattered and where teachers and scholars were granted lands and endowments so that they might completely devote to learning. Firuz Tughlaq fixed liberal stipends to the learned men and teachers of Jaunpur, but Sikander Lodi after his conquest of Jaunpur ordered the destruction of important buildings including the madrasahs. During the reign of Moghul emperors it again enjoyed its high reputation. State reporter stationed at Jaunpur had to send regular reports about the progress of every madrasah, and fresh grants were sanctioned as and when required.

Jewels, Three [Triratna] (Ind.): see 'Triratna'.
job: a unit of work in the Dalton plan to be completed in a given time; popularly used for the work done on a monetary basis. 'Job psychograph' is a profile of the traits and abilities required in a job. 'Job evaluation' assesses the remuneration to be offered. 'Job

placement' is the assignment of a person to a job. 'Job specification' gives the description of a job and the personal qualities required for handling it.

job-analysis : a study of an occupation based on the analysis of the major and minor duties involved therein and the knowledge, habits and skills required for success in it. This helps to devise methods for selecting or training workers for the occupation in question. It is sometimes loosely used for the term, 'job specification'.

journey, school : see 'school journey'.

judgment : an intellectual process of critical evaluation of a person, thing or situation result-

ing in the affirmation or denial in the form of an opinion, estimate, conclusion or decision. Judgments are required at every step of our life and students therefore should be encouraged to form their own judgments through independent thinking. Lack of clarity of thought, lack of time for reflection and our deep-rooted prejudices lead to incorrect judgments.

judgment, absolute : see 'absolute judgment'.

junior high school (Can.) : a school usually consisting of grades from VII to IX or X, forming a link between elementary and secondary education.

K

Kanauj (Ind.) : a centre of Brahmanical learning, famous for its study of *Purva Mīmāṃsā* during the reign of Yashovarman (675—710 A.D.) who was the patron of Bhababhuti, the disciple of Kumārila Bhatta.

Kāñchi (Ind.) : a great centre of learning. Here Hiuen Tsang had conversation on *Yoga* philosophy with monks from Ceylon. Dharmapāla of Kāñchi is said to have defeated a hundred Hinayāna *sutrakāras* in a discussion which lasted for a week.

Kanishka, education under (Ind.) : ruled probably from 120 A.D. to 143 A.D. ; convened a great Buddhist Council in Kashmir which was attended by 500 Buddhist scholars who made a thorough examination of theological literature from the remote antiquity and prepared many works including the Mahāvibhāṣa, an encyclopaedia of Buddhist philosophy which still exists in Chinese ; Asvaghosha, the famous author, was the Vice-President of this learned council.

Karachi Plan : see 'Unesco's Regional Meeting on Primary and Compulsory Education'.

karma (Ind.) : action, conduct, deed. The Doctrine of *Karma* elaborated in *Upanishads* was adopted by Hinduism, Buddhism and Jainism. The *karma* of the previous life determines a man's character, fortune, happiness and sorrow in this life ; and it is through *karma* of this life that one acquires the body of the next life, whether divine, human, animal or hellish. The Law of *Karma* explained the mystery of present suffering and the doctrine of transmigration.

Karna-parva (Ind.) : 'Karna section', the eighth book of the *Mahābhārata* containing the battle

under the command of Karna who is killed at the hands of Arjuna.

Kalas, sixty-four (Ind.) : [lit., 'Kala'—Arts and Crafts] ancient Indian arts and crafts (frequently mentioned in Sanskrit, Buddhist and Jain literature) whose number has been traditionally established as 64. The list generally includes the following : dancing, music, painting, sculpture, skill at toilette, gardening, wrestling, swimming, metallurgy, military training, knowledge of different languages and scripts, arts of cooking, making garlands, decorating floor, preparing bed, hurling missiles, forming an army, testing the genuineness of gold and precious stones, ploughing, irrigation, bringing up children, handling offenders, preparing 'tambula' (by betel nuts, slaked lime, pan-leaf), manufacturing various articles, serving another to his heart's content, cleansing houses, cleaning clothes, milking and making ghee, utilizing leisure, sewing, weaving, etc.

Kashi (Ind.) : a centre of learning which became famous probably in the 7th century B.C. Its modern name is Banaras. Buddha selected Sarnath, on the outskirts of Banaras, for the first promulgation of his gospel. Under the patronage of Asoka, Sarnath monastery developed into a famous centre of Buddhist learning and must have continued to flourish till the 12th century A.D. There is little record of any educational activity during the period 1200-1500 A.D. under the Muslim rule. In sixteenth century a number of scholars from Karnatak repaired to Banaras and their descendants continued to guard the lighted lamp of scholarship in the following centuries. Even Muslim rulers like

Akbar, Shah Jahan and Dara Shikoh extended their patronage to some famous scholars of Banaras.

Kashi Vidyapith (Ind.): an institution of national importance established in 1921 in Banaras due to the efforts of Mahatma Gandhi. Dr. Bhagwan Dass, and others as they wanted to introduce national education suiting to Indian needs, aspirations and culture. It has grown into national importance and provides education upto the post-graduate classes and has research facilities. Lal Bahadur Shastri, the late Prime Minister of India, was a graduate of this institution. Eminent scholars like Dr. Bhagwan Dass, Acharya Narendra Deva, Acharya Kripalani, Dr. Sampurnanand, and Sri Shri Prakasha had been on the staff of this institution.

Kathak (Ind.): [lit., story] a type of semi-classical dance originated in the northern India. Themes are selected from the Epics and from the life of Krishna. It is meant to be a Solo dance, the part of Radha and Krishna alternatively played. The story is told by means of hand gestures, bodily postures and facial mime. A rapid whirling movement, a peculiar gliding motion and a highly intricate foot work characterize the dance.

Kathakali (Ind.): [lit., story-play] a mimetic dance-drama of Malabar (in Kerala). The costumes and particularly the headgear are very gaudily coloured and ornamented. It is essentially a male dance. Masks are used which are laboriously built up by the application of flour pastes, layer upon layer, on the face. The dance consists entirely of highly stylized gestures of the hands and bodily postures, executed according to rules. The plays are usually drawn from the Epics and Puranas.

Kathopanishad (Ind.): one of the *Yajur-Vedic Upanishads* containing the subject of the *Vedānta* and the path of *Yoga*. It includes the legend of Nachiketas. It contains the famous statement, "If the slayer thinks he can slay, or if the slain thinks he is slain, they both do not know the truth, for the self neither slays nor is slain."

Kaushitaki Upanishad (Ind.): one of the *Rig-Vedic Upanishads* included in *Kaushitaki Aranyaka*, in which Ajātashatru, King of Kāsi is mentioned teaching the proud Bālāke, and the King Chitra Gāngyāni teaching Aruni.

Kautilya (Ind.): believed to be the Brāhman counsellor and prime minister of Chandragupta Maurya, and also known as Chānakya or Vishnugupta. He was probably born and educated at Taxilā. He is the reputed author of *Kautilya Arthashastra* (usually abbreviated

as *Arthashastra*), a treatise on Polity, greatly valued as a source of information on State administration. The author of the book states that his book is a compendium of almost all the ancient knowledge on economics. It gives very detailed instructions on the control and organization of the State and the conduct of war.

Kautilya Arthashastra (Ind.): see '*Arthashastra*, *Kautilya*'.

Kedara-raga (Ind.): a *rāga* (a class of modal melodies) to be sung at night. It produces a mood of awe and devotion.

Keilhan School of Froebel: the Universal German Institute of Education started by Froebel at Keilhan where he translated his ideas into action.

Kendriya Vidyalaya Sangathan (Ind.): see 'central schools'.

Kenopanishad (Ind.): one of the *Sāma-Vedic Upanishads* included in the Jaiminiya Brāhmaṇa, devoted to the glorification of *Umā*, who explains the mystery of *Brahma*.

Kharoshthi script: see 'scripts, Indian'.

Kher Committee Report (1940) (Ind.): a report of the committee appointed in 1938 by the Central Board of Education under the Chairmanship of Shri B.G. Kher, the then Premier of Bombay, to consider Zakir Husain Committee's report in conjunction with the Wood-Abbot Report. Important conclusions of the committee were (1) Scheme of Basic Education to be first introduced in rural areas; (2) Training of teachers to be reorganized; (3) Salary to be not less than Rs. 20 p.m.; (4) English not to be introduced in Basic Schools; (5) Pre-basic schools to be introduced; (6) Basic education to be for 8 years i.e., 6 to 14 years.

Kindergarten: [derived from a Ger. word, lit., children's garden] a type of school founded by Froebel in Germany in 1840 for young children between 3 and 7 years of age. But now the name is commonly used for any school or section of a school system devoted to the education of small children, usually from 3 to 6 years of age. It was meant to be a pleasant place conducive to growth. This institution is characterized by (i) organised play activities having educational values, (ii) opportunities for self-expression, (iii) training in how to work and live together harmoniously. Madam Montessori with her background of educational theory influenced by the work of Rousseau-Froebel-Pestalozzi group prepared didactic material which included basic sense tablets, sound boxes, sand paper, etc.

kinesthetic method: method of teaching a child

to spell the written words or read the numbers by having him trace the outlines of those words or numbers with the help of fingers ; method of correcting faulty speech by making the person conscious of the movements and positions of the speech organs for correct speech.

kinesthetic perception : see 'perception, kinesthetic'.

kinesthetic receptors : sense organs located in the muscles, tendons, and joints that convey impulses to the brain when muscles are contracted or stretched.

Kishkindhya-kanda (Ind.) : 'Kishkindhyā section', the fourth book of the *Rāmāyana* dealing with Rānī's stay at Kishkindhyā, the residence of Sugriva.

klesha (Ind.) : [lit., affliction] *klesha* stands for the five primary impurities of human nature which bring affliction : (1) *Avidyā*, ignorance ; (2) *Asmitā*, consciousness of identity between Self and Not-self, Purusha and Prakriti ; (3) *Rāga*, passion, greed or lust ; (4) *Dvesha*, aversion, repulsion, anger or vengeance ; (5) *Abinivesha*, instinctive love of life or fear of death. These afflictions or impurities can be annihilated through *Kriyā-yoga*, which beginners in *Yoga* are advised to pursue through the medium of *Tapas*, *Svādhyāya* (repetition of the purifying formulae) and *Ishvara-pranidhāna* (devotion to the personal deity).

know : cognition or getting an idea, or becoming aware of some thing, or learning a thing thoroughly. Knowing is simpler than understanding or comprehension, but more complex than perceiving or apprehension.

knowledge : accumulated facts, information, and all learning that the human mind can command. It may be derived from sense experience, intuition or by reasoning. Simple knowledge is 'apprehension', more complex knowledge is 'comprehension' or understanding.

'Functional knowledge' is that which can be used and applied.

Koran : see 'Qur'an'.

Kothari Commission : see 'Education Commission 1964-66'.

Kuder's preference record : a test that measures interest in ten general areas : (1) outdoor (2) mechanical (3) computational (4) scientific (5) persuasive (6) literary (7) musical (8) artistic (9) social service and (10) classical.

Kunzru Committee (Ind.) : a committee (named 'Committee for Co-ordination and Integration of Schemes operating in the field of Physical Education, Recreation and Youth Welfare') appointed by the Government of India in 1959, under the Chairmanship of Dr. Hriday Nath Kunzru to recommend measures for the co-ordination of various schemes in the field of physical education and recreation, and for the development of the most useful schemes for character-building and discipline among students. The major recommendations included : (1) At the school stage there should be an integrated programme consisting of a compulsory curriculum and an optional curriculum ; (2) At the collegiate level, N.C.C. training should be encouraged ; (3) Scouting and guiding should be an extra-curricular activity on a voluntary basis ; (4) Small labour and social service undertaking within the school campus should be encouraged ; (5) 'House systems', art exhibitions, inter-house debates, team games, educational tours, 'Inter-university Youth Festivals', and inter-village festivals should be encouraged.

Kurukshetra University (Ind.) : a teaching and residential university founded in 1956 in Haryana. This was the first university in the country to start a four-year degree course in education. There is an Institute of Indian Studies for Advanced Work in Sanskrit.

L

laboratory, English : a room especially equipped with voice-recording machinery, tape recorder, slides, radio, projector, charts, reference books, etc. for the teaching of English.

laboratory, language : see 'language laboratory'.

laboratory, school : a special room containing apparatus and equipment where students under the guidance of teachers carry on experiments.

laboratory method : a procedure of instruction

by which the cause, effect, nature or property of any phenomenon, whether physical, psychological or social is determined by conducting experiment under controlled conditions.

laboratory work : learning activities carried out in a laboratory involving practical work corresponding to the theoretical knowledge acquired.

Labour and Social Service Camps (Ind.) : a

scheme introduced in 1953 with the object of providing youth of the country with the opportunity for self-expression and social service and of appreciating the dignity of labour. Various organizations receive grants for organizing camps. The camps are usually held in rural areas so that the youth gets acquainted with the villagers and their problems. The campers devote a few hours everyday to manual labour.

ladder, educational : see 'educational ladder'.

Lakshman Sena, education under (Ind.) : probably ruled from 1178 to 1205. King Lakshman Sena of Bengal was a man of high intellectual ability. He greatly encouraged learning and his court became a resort of illustrious men of learning. He made Nadia, popularly known as Navadvipa, his capital which soon rose to renown as a great centre of learning. His reign is particularly noted for the liberal patronage of Sanskrit literature. Scholars like Halayudha (the learned prime minister of the king) and Shulapani (an authority on law) were the glories of his court. Poets like Jayadeva (the author of Gita-Govinda), Dhoyi and Umapati built up the reputation of Nadia.

Lakshmi Bai College of Physical Education (Ind.) : a national college of physical education established in Gwalior in 1957 for imparting a three-year course leading to a Bachelor's Degree. The college covers a wide field in physical education and includes training in yogic exercises and indigenous physical activities. It has also facilities for advanced study and research.

Lalit Kala Akademi (Ind.) : see 'National Akademi'.

lallation : defective articulation of particularly *l* and *r* sounds (and also *d*, *g*, *k*, *n* and *t* sounds) due to inadequate movement of the tongue.

Laneastrian system : a system of organizing group instruction by the help of abler pupils called monitors, originated by Joseph Lancaster (1778-1838). (see 'monitorial system').

land grant (U.S.A.) : land grants or endowment in the form of land made by a government for the support of schools and colleges. Federal government in the U.S.A. throughout its history has provided land grants for common schools and colleges in the States. In the early days of American history, the resources of the government consisted more largely of public lands than in the form of money.

language : any set or system of vocal or written symbols, used in a more or less uniform way by the members of a community.

language ability : see 'ability'.

language activities : activities like conversation, story-telling, compositional work, letter writing

and making reports which provide ample opportunities for the improvement of oral and written expression.

language laboratory : a very recent innovation in the teaching of languages. Specially installed tables with a head-set and a tape recorder for each individual make the study of foreign language clearer and the listening experience more personal with increased attention. Students become more enthusiastic to learn and attain great fluency and confidence.

language of art : a term used to imply that art, like language, has its own power to express and communicate. Line, form, colour and texture, like words and phrases, combine to form meaningful pattern or composition that can be 'read' and appreciated.

language pattern : a set pattern of speech, pronunciation, accent, phrasing, characteristic of a person, place or period.

language study, exploratory : the study of one or more foreign languages for discovering the language interests and abilities of the pupils.

language teachers (Ind.) : teachers variously designated as pandits, shastris, acharyas, kovid, alim, fazil, etc., who are appointed after completing a particular standard of proficiency in a classical or a modern Indian language.

lassitude : a state of neuro-muscular relaxation characterized by disinclination to exert or interest oneself.

late bloomers : students in whose case the rate of their development is slower than of their age in school but who, all of a sudden, make up their deficiency.

latent learning : learning that becomes evident only when the occasion arises for using it.

lay teacher : a Catholic school teacher who is not a clergy and who does not belong to a sisterhood or brotherhood.

leadership, democratic : see 'democratic leadership'.

leadership, participatory : see 'participatory leadership'.

learned goal : a goal that has been acquired through learning, as distinguished from a physiological goal.

learner, slow : see 'slow learner'.

learning : a general term used for a relatively permanent change in behaviour or response as a result of practice, training or experience. It includes conditioning, instrumental learning, and perceptual learning but excludes physiological changes like fatigue and sensory adaptation. It is difficult to explain or describe learning in precise terms because there exists little similarity among processes like adding a

sum, memorizing a poem, learning to drive a car, to play hockey or to develop international understanding. The common factor remains that as a result of learning some change takes place in the individual that he now can do what he could not do earlier. Learning is manifested through performance, and all performance is partly the result of learning, and yet the two are not the same. Learning curves are actually performance curves because it is through performance that learning is measured.

learning, alpha hypothesis of : see 'alpha hypothesis of learning'.

learning by doing : a maxim which stresses the importance of activity on the part of pupils. It is widely felt that children learn more quickly and effectively when they are actively engaged in 'doing'.

learning, concomitant : learning that comes in a casual manner without any direct intention to learn.

learning curve : any graphical representation of progress in learning. The changes in performance indicating learning are measured after each successive unit of practice. The units of practice in terms of equal amount of time or equal number of repetitions are shown on the horizontal axis while the progress in terms of amount recalled or number of errors, etc. is shown on the vertical axis. The learning curve is actually a performance curve.

learning, deductive : see 'deductive learning'.

learning, discriminative : see 'discriminative learning'.

learning, functional : the learning which is necessary to attain one's goal. It is not incidental but has a definite function in the total activity, like learning to measure paper, to prepare an envelope or to weigh chemicals to perform an experiment.

learning, ideational : see 'ideational learning'.

learning, incidental : see 'incidental learning'.

learning, latent : see 'latent learning'.

learning, motor : learning involving motor activity or muscular movements.

learning, paired-associate of : see 'paired-associate of learning'.

learning, perceptual : learning that occurs mostly through the senses and brings about changes in perception.

learning, perceptual-motor : learning in which perceptual stimuli initiate motor responses, like infant's efforts to reach for a bright toy, boy's learning to use a typewriter or girl's playing on a sitar. It involves the co-ordination of motor activities with the sensory, and central co-ordinating aspects of a learning situation.

Modern life demands a high measure of skill in perceptual-motor activities. Perceptual-motor development depends on physical and mental maturity and therefore it is erroneous to force the growth of a child in terms of introducing cursive writing, playing a musical instrument or using a microscope at too early an age.

learning, rote : learning by memorizing paying little attention to understanding. It implies frequent repetition and reproduction of words exactly as memorized. Mechanical learning, verbatim learning, or by-heart learning is used in this sense.

learning, theories of : a variety of learning theories exist which have lent ideas to the educational philosophies and practices. Each theory of learning is linked to a conception of the basic nature of man. The theory of reinforcement and conditioning as represented by Skinner, and the cognitive-field theory first advanced by Kurt Lewin, are the two leading contenders today. Although some theories go back to St. Augustine and Plato, they still exert influence in our schools. Each theory makes its unique approach to education, yet some have enough in common to be grouped in families. In a general sense five basic outlooks may be identified : Theory of Natural Unfoldment, Theory of Apperception, Theories of Mind Substance Family, Conditioning Theories of Stimulus-Response (S-R) Associationistic Family, and Cognitive Theories of Gestalt-Field Family.

learning, Thorndike's laws of : three laws—of exercise, of effect, and of readiness. The law of exercise states that a connection is strengthened by the vigour, duration of making a connection and the number of times it is made. It implies that learning depends on constant repetition. The law of effect states that the connection is increased if the effort is accompanied by a sense of satisfaction. It implies the value of reward and punishment in teaching. The law of readiness states that readiness of a conduction unit brings satisfaction in conduction.

learning, whole vs. part : In whole learning, the whole learning material is mastered by repeating it from first to last till it is learned. In part learning, the whole is broken into smaller parts for mastering them separately and then combining them into a whole. In 'modified whole method of learning' important and difficult portions are given special attention while learning the material as a whole.

learning outcome : a result of experience in or outside of the school stated in terms of pupil

behaviour. The outcomes of learning resulting from learning activities may be skills and habits, social competence, and abstract and creative thinking. The accomplishments in the three types of learning outcomes are so varied that some psychologists hold that there are three kinds of general intelligence—the mechanical, the social, and the abstract.

learning plateau : the duration when no further progress in learning appears to take place.

learning, serial : see 'serial learning'.

learning set : a kind of transfer of training in which a subject learns more quickly the problems of the same general type.

lecture method : oral exposition or talking by the teacher continued for a long time generally uninterrupted by questions and with minimum class participation. This method has little place in schools as it has no educational value for the young children. It provides only one way communication without the opportunity for the students to participate or clear doubts as they arise, and for the teachers to know how much the students are learning. In colleges this is the usual method as it is easy to employ, reduces the cost of instruction by using large classes, and presents large mass of factual material in a short time. Now the tendency is to modify this method by allowing questions and to supplement it by small tutorial groups.

lecturer : the term is used for those who teach beyond the secondary stage, in colleges and universities. The general academic hierarchy is Professor, Reader, Senior Lecturer, Lecturer, Assistant Lecturer.

lectures : the most common method of instruction used in colleges and universities. Often these lecture groups divide into smaller discussion groups.

leisure : implies spare-time, a period of rest and relaxation. One of the aims of education is to prepare the individual to utilize his leisure for the recreation of body, mind and spirit, and the enrichment of his personality. The schools have not yet been given full attention to the use of leisure by developing hobbies, literary habits, taste for general reading and interest in social work. Meaningful vitalized recreational habits and interests once generated in early life may be worthily carried over into adult hobbies and avocations.

lesson, disciplinary : a kind of lesson, advocated by educationists of early twentieth century, which was to be given regularly everyday for encouraging right attitudes and behaviour and correcting the wrong ones by means of exemplary conduct of the teacher, exposure to selec-

tive ideas and rewards and punishment.

lesson plan : a plan of a lesson prepared in advance by a teacher regarding the instructional activities to be carried out in a class period. It serves as a guide or ready reference for the procedures to be followed.

lessons, observation : see 'observation lessons'.

level of performance : the level of achievement of a person as distinguished from his level of aspiration.

levels of development : see 'development, levels of'.

liberal arts, seven : the medieval curriculum consisting of three studies or trivium at the elementary level and four studies or quadrivium at the advanced level.

liberal education : historically, the education meant for freemen as distinguished from that meant for slaves, and included subjects like rhetoric, logic, grammar, arithmetic, geometry, music and astronomy ; in the modern sense, a broad general education as distinguished from vocational education. Some writers do not make any distinction between liberal education and general education. Others point out that liberal education stresses facts and subject matter, while general education stresses ideas and people ; that liberal education is reserved for the bright students and is concerned with the development of intellect, while general education is for the less gifted and is concerned with the development of the whole personality in a social context.

libido : originally used by psychoanalysts to denote sexual desire. It is commonly used to mean psychic energy or instinctual impulse that tends towards life rather than death.

librarian, teacher : a teacher who has the charge of a school library besides his regular instructional responsibilities.

Library, National (Ind.) : see 'National Library'.

library, open-shelf : see 'open-shelf library'.

library, school : a library which selects, collects, organizes and distributes books and other educational materials for the use of pupils and teachers, develops and promotes reading interests, encourages study from many sources, provides leisure-time and recreational reading, and teaches the intelligent use of books. The library should contain books for various age levels, for the retarded readers and the gifted ones, pleasure reading books, reference books, representative literature, periodicals and professional materials for the use of teachers. Library will fail to make its greatest possible contribution if it is looked upon as a convenient place for storing books instead of the

most attractive part of the school where the librarian shares the status, the responsibilities and the opportunities of the teaching staff.

library equipment : see 'equipment, library'.

library period : see 'period, library'.

lie detector : a popular name of a device designed to detect guilt, usually by measuring changes in breathing, pulse, heart rate, blood pressure, and galvanic response.

life-urge : The essential characteristic of the mind is its purposive forces that determine the behaviour of the organism, and the central purpose is the urge to live. This life-urge is called the 'elan vital' by Bergson, 'libido' by Jung, and 'horme' by Nunn.

lighting : Illumination or lighting should be sufficient in the school since the most eye-straining work is carried on in the classrooms. To allow natural light through the windows, window space should be about one-fifth of the floor area. Higher the windows, the better for light. Ceilings and walls should have high light-reflecting values. Regarding artificial lighting semi-indirect and indirect lights are preferable as the light reflected back from the ceiling considerably reduces glare. Seating arrangement should be so planned as to receive light from the left, for the light coming from the front will dazzle the eyes and the light coming from the back or right will bring shadows on the paper or book.

line administration : see 'administration, line'.

line-and-staff organization of supervision : see 'supervision, line-and-staff organization'.

line graph : a graph constructed by plotting points representing the observed values for successive categories of a discrete variable and then connecting these points with lines.

line of writing : the base line upon which the written letters rest with strokes extending above and below the line.

linguistic growth : see 'growth, linguistic'.

linguistic minorities : persons whose mother-tongue is different from the regional language of a territory or State.

linguistic test : see 'test, linguistic'.

literacy, Unesco and : see 'Unesco and literacy'.

load, teaching : the time and energy of a teacher spent to perform his professional duties and which can be indicated in a number of ways, like number of classes taught per day, size of the classes, number of different subjects taught, types of subjects taught, extra teaching duties, pupil-teacher ratio, total time devoted, etc.

load factor : any factor that influences the teaching load like hours of work, size of classes,

type of subjects, diversity of subjects, extra teaching duties, etc.

local body (Ind.) : a municipal board, committee or corporation ; district board, cantonment board ; union committee, town area committee ; Janapada sabha, etc. A local body is generally associated with the administration of primary education at three levels—village level, block or taluka level, and district level.

Local Education Authority (Brit.) : (abbreviated as L.E.A.) County Council or County Borough Council in England and Wales contributing towards the spiritual, moral, mental and physical development of the community through education. Most of the work of an L.E.A. is usually done through its education committee.

locker : a compartment for locking clothes, books, etc. which the students use while attending classes, or in connection with the gymnasium as they need changing clothes.

locomotion, quadrupedal : see 'quadrupedal locomotion'.

Lodi, education under Bahlol (Ind.) : ruled 1451-1488. The invasion of Taimur in 1398-1399 had wrecked Delhi and other centres of learning. During the reign of Sayyid Dynasty in the first half of the 15th century, Delhi tried to recover itself. Sultan Bahlol of the Lodi Dynasty founded a new city at Agra which made so rapid a progress that within half a century it competed on equal footing with Delhi. Peace and order returned to the country and learning was much encouraged as the Sultan himself was fond of the company of learned men. Bahlol's study of Muhammadan Law helped him much in the dispensation of justice and the discharge of his duties including the diffusion of education.

Lodi, education under Sikander (Ind.) : ruled 1488-1518. He transferred his capital from Delhi to Agra which soon became the centre of gravity of the learned world. The Sultan himself was a poet and he composed verses under the pen-name of Gulrukh. He recognized literary merit and encouraged learning. He was the first Sultan who insisted that his military officers should be educated. Hindus took more interest in learning Persian language, and the origin of Urdu dates from this period. A large number of books were written, translated or compiled under the orders of the Sultan and 'belles letters' was much encouraged. During this reign, the name of Masnad Ali Husain Khan, a noble man, may be remembered for his liberality and interest in the promotion of learning.

logic : the branch of scientific or systematic

study which investigates the general principles on which validity in thinking depends, and deals with principles and their inferential interpretations.

look-and-say method : method of teaching reading in which a child is taught to recognise a whole word at a time. It is in contrast with 'Alphabetic Method', now almost obsolete, in which a child is taught to spell out each letter by its conventional name. The 'phonic method' of teaching reading is based on sound-values of letters and can be of limited use in languages whose alphabets are not phonetically pronounced (like English in contrast to Italian or Hindi).

loop letters : those hand-written letters which involve doubling or loops as in *b, f, g, h, j*, etc.

loud reading : an important aspect in language learning. It helps the teacher to check incorrect pronunciation, intonation, stress, pause and to provide guidance for good reading. It aids

the students to overcome nervousness, to develop qualities associated with good speech and oratory, and it provides pleasure and inspiration.

lower school (Can.) : the name used in Ontario for the first and second years of the secondary school, i.e., the IX and X grades.

lying : misrepresentation of facts ; an attempt to deceive. The desire to escape punishment, to shield friends, to hide feeling of inferiority, to find elder people themselves indulging in it are some of the reasons for lying. Lying of some small children may result from their inability to distinguish between fact and fancy, though the situation improves with age. Good examples from parents and elders, the avoidance of severe punishment in such matters and the non-interference of adults through unnecessary queries about their personal affairs may help the children to keep up their truth-telling standards.

M

Macaulay's Minute (Ind.) : the famous minute of Lord Macaulay, the first Law Member of the Governor General's Executive Council, submitted in 1835 which opened a new chapter in the educational history of India wherein he advocated the education of the upper classes and made a vigorous plea for spreading western learning through the medium of English. Lord Macaulay thought that it was possible through English education to bring about a class of persons Indian in blood and colour but English in tastes, in opinions, in morals and in intellect.

machine shop : an enclosure inside a workshop or factory where machine tools are installed for the use of machining various types of components for general and engineering use. It may be considered as the heart of a workshop.

macrocephaly : excessive enlargement of the head usually accompanied by mental deficiency.

macrophotography : a technique of photography in which small sized subjects (like insects) can be photographed in an enlarged form, not possible through ordinary photographic methods.

Madhva (Ind.) : (1197-1280) philosopher-founder of dualism born near Udupi, sixty miles from Mangalore. He was said to have mastered

Vedas and *Vedāngas* before he was five. He was a great opponent of Shankara's *Advaita*, non-dualistic philosophy. In his doctrine of *Dvaita* or dualism both *Brahma* and the *jiva* or the human soul have reality and are eternally distinct. The *jiva*, though absolutely dependent on *Brahma*, has an active and independent entity.

Madhyama Pratipad (Ind.) : Middle Path preached by the Buddha, a mean between the two extremes which must be avoided, namely (1) attachment to and pursuit of desires and worldly pleasures and (2) practice and pursuit of pain, self-mortification and asceticism.

madrasah : educational institute for imparting Islamic education and higher learning. Madrasah is derived from Arabic word 'dars' (a lecture) and means a place where lecture is given. There was no difference in principle between the madrasah and other mosques. When a particular room was set apart in a mosque for the teaching purposes it was called a madrasah. Sometimes it was quite close to a large mosque. During the Muslim period it functioned as college of higher education where eminent scholars taught different subjects by using the lecture method supplemented by discussions. Management was usually private supported

by State grants and endowments. The content of the curriculum was both religious and secular and covered a period from 10 to 12 years. Religious education comprised deep study of the Qur'an, Islamic law and Sufism. Literature, logic, history, geography, astronomy, astrology, arithmetic, agriculture and medicine were the secular subjects taught in madrasahs. Some madrasahs had hostels attached to them which provided free boarding and lodging.

Madras University (Ind.): a teaching and affiliating university founded in 1857 in Madras. It is one of the three oldest universities in the country. Its Departments of Botany, Physics, Philosophy and Sanskrit are widely recognized as doing first rate work.

magazine, school: printed or hand-written students' periodical to develop creative writing and to sustain literary activities throughout the year. A school magazine fails to fulfil its purpose when nearly all the writing and producing are done by the staff, or the material is presented in an immature and slipshod manner, or the whole literary enthusiasm and production is limited within a short span of a month. The present trend is to publish the best of all-school student writing carried out throughout the year under the proper guidance of and encouragement from the teachers.

magic-lantern: one of the aids to teaching with the help of which only slides can be projected and things can be made more vivid and realistic. It can be used without electricity.

Mahabharata (Ind.): one of the two great Indian epics, the other being the *Rāmāyana*. It is considered to be the earliest Indian literature mostly of a secular character worked over by a succession of priestly editors. Traditionally the author of the poem is Vyāsa who dictated it to Ganesha and then taught it to his pupil Vaishampāyana, the guru of Yājñavalkya. At present the epic is said to consist of 220,000 lines in eighteen books and is probably the longest single poem in the world's literature. It tells the story of the descendants of Bharata climaxed in the great war of succession between the Kauravas and Pandavas in the region near modern Delhi, then known as Kuruksetra, and ending in the total extinction of the Kauravas and the departure of the Pandavas to the Himalayas on the way to heaven.

mahabhūta (Ind.): the five states of matter or pure elements, namely, (1) *Akāśa* (ether), (2) *Vāyu* (air), (3) *Tejas* (fire), (4) *Apas* (water), and (5) *Prithivi* (earth). The *mahābhūtas* are the materialized forms of *tanmātra* or potential

matter. Ether manifests the *tanmātra* of sound; air manifests sound and touch; fire manifests sound, touch, and form; water manifests sound, touch, form and taste; earth manifests sound, touch, form, taste and smell.

Mahaprasthanika-parva (Ind.): [lit., great sojourn section] the seventeenth book of the *Mahābhārata* containing departure of Yudhishtira with his brothers and Draupadi to the Himalayas.

mahavakya (Ind.): [lit. great saying] the term is generally used for the gnomic sayings of great importance found in the sacred texts like *Vedas* and *Upanishads* stressing the identity of all things in *Brahma*, e.g. '*Aham brahmāsmi*' (I am Brahma)', '*Tat tvam asi*' (That Thou art), '*Satyam eva jayati*' (Truth alone triumphs).

maintained school (Brit.): a school in the public system of education owned and wholly maintained by a Local Education Authority.

major (U.S.A.): a term used for the subject in which the undergraduate student specializes. He may 'major' in Education, Business Administration, American Literature, French, or in any other subject. There are also pre-professional majors which include pre-dentistry, pre-law, pre-medicine, and pre-engineering.

make-believe: an important form of play in which children take delight in playing the roles of teachers, doctors, bus-drivers, etc.

maktab: school for imparting Islamic education. Maktab is derived from Arabic word '*kutub*' (writing), and means a place where writing is taught, or a place of books. It is generally attached to a mosque. During the Muslim period it was run with the help of well-to-do Muslims or with land or money grants from the rulers. The students begin by studying Urdu, Persian or Arabic. After being able to read the Arabic script, the students recite Suras or chapters of the Qur'an. Memorization and correct pronunciation are emphasized. Special attention is paid to good handwriting. Arithmetic, conversation, correspondence, poetry, and good manners are included in the curriculum. Gulistan or Bostan of Sadi are generally prescribed for the purpose of moral education.

maladjustment: a failure to meet the demands posed by everyday environment; a condition of an individual who is unable to adjust or adapt himself adequately to his physical, social or occupational environment.

maladjustment, educational: any disturbing situation created owing to the nature of assignments, school regulations or interpersonal

relationships, adversely affecting the school work and individual progress.

maladjustment, emotional: any disturbing situation created, owing to the individual's inadequate emotional response to personal and social demands made upon him, resulting in unsatisfactory interpersonal relationships.

maladjustment, social: the inability to accept the demands of the social environment and to behave in conformity with the norms and values of the society. Lack of social skills, inferior status, orthodoxy of social demands, and emotional maladjustment may be some of the factors for social maladjustment.

maladjustment, vocational: a disturbing condition created when an individual's temperament, ability, aspiration and interests do not suit the job he has chosen, resulting in dissatisfaction and frustration.

Malhar-raga: a *rāga* (a class of modal melodies) to be sung in the morning. It is believed to cause rain and bring peace.

malinger: pretending illness or disability to avoid or escape from personal difficulties or to cover lack of competence. It is distinguishable from 'hypochondria' which is not deliberate but a belief of a person in his imaginary illness.

Malkapuram Temple College (Ind.): an institution which was a temple, a college, a hostel and a hospital existing in the 13th century with 150 students and eight teachers.

Malkos raga (Ind.): a *rāga* (a class of modal melodies) to be sung at night in winter. It puts one in a martial mood.

Malwa (Ind.): once a great centre of Muslim learning under the patronage of Sultan Mahmud Khilji about the middle of the 15th century. According to Frishta, it could bear a fair comparison with Shirāz or Samarkand in literary excellence. It rose to be a great resort of distinguished philosophers and literary men who came not only from the different parts of the kingdom of Mālwa but also from other countries.

manaskara (Ind.): mental operations undertaken to help meditation and concentration and to increase the powers of the mind. Reading, memorizing and reciting assist *manaskāra* which requires *āsanas* and *mantras* for higher spiritual experience. Sloth (*tandrā*), apathy (*styāna*), doubt (*saṅgshaya*), obstinacy (*abhinivesha*), and lust (*kāma*) impede mental work, while *abhyāsa* (persistent practice), *nishchaya* (resolve), *sangkalpa* (mustering all power), *viveka* (discrimination), *saṃādāna* (single-mindedness), and *ekāgratā* (one-pointedness) help

manaskāra.

mandala (Ind.): a symbolic diagram of squares, triangles, patterns bounded by a circle. Mandala is said to help the powers of concentration. *Mandala* patterns have been variously explained in Hindu and Buddhist philosophies and have been adopted by some psychologists of the Jungian school. The *mandala* is believed to be a potent centre of psychic energy, though it is also used for decorative and protective purposes.

Mandukya Upanishad (Ind.): one of the *Atharva-Vedic Upanishads*. It is believed to contain the essence of the 108 *Upanishads*. Its central theme is the syllable *Om*.

mania: mental disorder characterised by uncontrolled excitement or violent abnormal conduct.

manipulative play: the most immature early stage of child's activity when it plays with toys and other objects by simply handling, lifting and moving them, without any idea to construct.

manipulative skill: see 'skill, manipulative'.

Manipuri (Ind.): one of the four great dance styles, the others being the *Bhārati-nūṭyam* of Tanjore, the *Kathak* of north India, and the *Kathakali* of Malabar. It belongs to the people of Manipur in Assam and is danced by men and women generally accompanied by a chorus of singers. The costumes are extremely rich and colourful. The girls wear wide skirts with a hooped flounce that stiffly stand out. The dance is soft, graceful and lyrical. The themes mostly centre round Krishna and the *gopis*.

manpower-requirements approach to educational planning: an approach to planning which calculates how much of each kind of skill a country will require in future, and then plans its education accordingly with the fundamental idea that total production should grow as fast as possible even at the cost of personal choice in pursuing studies or training. This approach stresses the employment-aspects of education. The only disadvantage of this approach is that new industries are continually demanding new specializations which are difficult to foresee in advance, and the aims pursued are very narrow.

man-to-man rating: a method of evaluating workers exemplifying different degrees of a particular trait by comparing individuals two at a time and rating one as better than the other.

mantra (Ind.): words in praise of the gods for the performance of worship. The term '*Mantra*' is also used for those portions of the Vedas which comprise the metrical psalms of praise, as distinct from the liturgical prose portions of the Brāhmanas. The *mantras* must

be properly pronounced to secure their spiritual effects and their meaning must also be properly mastered with the help of the six *Vedāṅgas*. In course of time the term came to be used for any sacred verse from the scriptures, spells or words having magical properties. Rituals have their own prescribed formulas and *mantras* appropriate for the respective occasions. *Mantras* may be divided in two broad heads : *Kantlika* i.e., throat or voiced and *Ajapa* i.e., non-uttered or repeated internally. (also see 'Om' and 'Gāyatri-mantra'.)

manual skill : see 'skill, manual'.

manual training : an earlier type of school subject where the students were enabled to use their hands as well as their heads through wood work or metal work. The emphasis, however, was on the use of tools and manual skill.

Manu (the law giver) (Ind.) : the supposed author of a famous code of Hindu law and jurisprudence, though very little is actually known about him. The Code of Manu is variously known as *Manu-smṛiti*, *Manu-saṅghitā* or *Mānavadharmasūtra* which may have been composed between 100 A.D. and 300 A.D. though traditionally it dates from immemorial antiquity. The code lays down social, moral and ethical code for the help and guidance of the people and sets down rules for the observance of rites.

Manu-saṅghita (Ind.) : see '*Manu-smṛiti*'.

manuscript writing : see 'writing, manuscript'.

Manu-smṛiti (Ind.) : the Code of Manu, the first systematic treatment of Hindu Law. It is composed of 12 books with the following contents : (i) cosmology (ii) sources of law and āśramas ; (iii) life of the grihastha or householder ; (iv) occupations and duties of the householder ; (v) women ; (vi) Vānaprastha and Sannyāsin ; (vii) duties of kings and political maxims ; (viii) law, debts, ownership ; (ix) rules regarding women, husbands, parents, children, marriage, funerals ; (x) rules for different castes ; (xi) morality, sins ; (xii) soul liberation, the doctrine of transmigration. *Manu-smṛiti* is also known as *Manu-saṅghitā*.

many sided interests : varied interests. For the all-round development of the personality it is necessary to have many-sided interests. A child must not only be prepared in certain school subjects but also be trained for life activities. Herbart classified interests on the basis of knowledge and participation. Knowledge-interests may be empirical, speculative and aesthetic. Participation-interests may be sympathetic, social and religious. Instruction must develop knowledge as well as participation interests.

map : The idea of a map may be introduced

in the primary classes through field trips, and the need for discovering the right direction, exact distance, and important landmarks may urge the students to consult school atlases. It is easier to use wall maps of equal-area projection as they provide good shapes and equal area representation. Ample exercises in filling up outlines of a map and finding out relevant information from a map may prove helpful in the study of geography. The practice of drawing free-hand outline maps of one's State or country should begin early.

map, crosshatch : a map in which varying quantities of a thing (like rainfall) distributed geographically are indicated by different types of crosshatching.

map, dot : a map in which varying quantities of a thing distributed geographically are indicated by dots. It may be a single-dot map where the size of a dot represents the quantity, or a multiple-dot map where the number of dots at a certain place represents the quantity.

marga (Ind.) : a path or road leading to particular goal. The term is also used for ways, means or methods for achieving certain ends like salvation and knowledge. The important *mārgas* repeatedly occurring in Indian philosophy are *Karma-mārga* (or *Karma-yoga*), the method of doing one's duty without the thought of its results ; *Jñāna-marga* (or *Jñāna yoga*), the way of right knowledge ; *Bhakti-mārga* (or *Bhakti-yoga*), the way of faith, love, and devotion to the deity ; *Iśvara-vāda*, salvation through the worship of a personal deity ; *Tarka-vāda*, salvation through discussion and reasoning as in *Nyāya* ; philosophy *Sūnya-vāda*, (nothingness-way) based on the doctrine of Mahāyāna.

marginal man : a person who stands between two groups, feeling uncertain about his status in either group.

marionettes : Marionettes and puppets allow the children to participate in a valuable learning situation where they can make use of their imagination and creativity and project their own ideas and emotions. Puppets are easy to make, the simplest type being the hand puppet made out of paper bags, socks, etc. Marionettes are manipulated by strings, and their complications make them difficult to handle until the child is able to manipulate the figures.

mark, absolute : marks actually given after assessing the work performed, such as raw score. It is to be distinguished from relative mark, in which raw score is converted into a comparable standard measure, such as percentile.

mark, relative : an achievement mark expressed

in terms of a standard, such as a percentile or percentage, or according to a standard rating scale like the usual A,B,C,D system.

marking system : any method of measuring and recording the actual achievement of students in their studies or other school activities.

mass education : universal schooling of all children under public support. Mass education movement was originally started by James Yen attempting to make all China literate.

mass media : a collective term used for all visual aids and other instruments of communication that can reach a large number of people at once. It consists of motion pictures, television, radio, press, newspapers, magazines, books, etc.

mass suggestion : suggestion given to and accepted by a large group of persons.

master : teacher. The word conveyed different ideas at different times before it came to be used for school teachers. Originally the word meant 'chief' as it is still used in 'master-cook'. In medieval times it meant a title of honour which has now been shortened to 'Mr.'. In the twelfth century it was used as a regular title for university men. In the American colonies, the teacher of the elementary school was called 'school master', and the teacher of the Latin grammar school was simply called 'master', the distinction later disappeared.

master sentiment : the strong sentiment under which other sentiments work in harmony, and are controlled by it.

mastery formula : a term used by Morrison for the method of securing mastery of a subject matter, in which testing forms the beginning, middle and end of a teaching-learning process so that teaching may be appropriately adapted to the need of the learner.

matched groups : two or more comparable groups of individuals or things exemplifying certain characteristics of like nature.

matching exercise : a type of test exercise in which the subject responds by pairing the related items in two or more columns of related facts or ideas.

matching grants : money provided by the government with the stipulation that the receiving agency must also provide similar amount of money or a fixed proportion thereof for the same educational purpose.

matching test : see 'test, matching'.

material instructional : see 'instructional material'.

materialism : metaphysical theory that all parts of the universe can be reduced to matter, even mind is derived from matter, and laws direct

the universe and not purpose ; acceptance of the theory of economic determinism of history.
matha (Ind.) : an indigenous type of educational organization by which a central seat of authority regulates and controls different and distant centres of culture and religious life. The Golaki Matha at Kurnool district which existed during 13th century A.D. provides an example of this federal type of educational and religious organization. This particular *matha* exercised its spiritual influence and control over 3 lacs of villages. The Brāhmanical *mathas* and temple colleges have some similarities with the Buddhist *vihāras* and monasteries as educational institutions.

mathematical crutches : artificial help taken for performing a mathematical exercise, like counting on fingers.

Mathematical Requirements, National Committee on (U.S.A.) : The report of the National Committee on Mathematical Requirements appointed in 1916 by the Mathematical Association of America recommended that the aims of mathematical instruction should be : (1) practical—useful in the work-a-day world ; (2) disciplinary—training of certain intellectual skills like analyzing a complex problem or recognizing logical relations ; (3) cultural—aesthetic satisfaction derived from understanding logical structure and reaching precise answers. About the method of instruction it recommended that a reasonable amount of informal work of an experimental nature should precede formal demonstration or proof, and that intensive drill on the manipulation of symbols should be used to improve speed and accuracy after understanding has been developed.

Mathematics, Commission on Post-War Plans for (U.S.A.) : In 1944 the National Council of Teachers of Mathematics created the Commission on Post-War Plans to provide leadership for the teaching of mathematics, one of the reasons being the inadequate mathematical proficiency of average students and the shortage of mathematicians and scientists as revealed during World War II. It stressed the desirability of teaching which develops meaning and understanding.

mathematics, discovery method in : see, 'mathematics, Heuristic method in'.

mathematics, Heuristic method in : Some data is given to the student who infers from these data. If the inference is correct, the method ends there. If not, the teacher supplies new data which will help the student to discover the correct knowledge. In fact, teacher does not state the item of knowledge, it is the student

who discovers it. The method is sometimes called the discovery method. The Heuristic methods can be classified into two groups : inductive and deductive.

mathematics, Indian : Ancient India quite early evolved a simple system of geometry urged by the necessity of accurately laying the open-air sacrificial places. Shulva-shutra are the oldest mathematical works, probably composed between 400 B.C. and 200 A.D. Aryabhata (476—520) is the first great name in Indian mathematics. To the period immediately preceding him belongs one of the most significant of human discoveries, the zero, though the name of the discoverer is unknown. Medieval Indian mathematicians, such as Brahmagupta (7th century), Mahāvīra (9th century) and Bhāskara (12th century) made important mathematical discoveries which were not known to Europe until the Renaissance. They knew the importance of positive and negative quantities and rules of extracting square and cube roots. They could solve quadratic and indeterminate equations. Aryabhata's determination of the value of pi (π) as $\frac{62832}{20000}$ i.e., 3.1416 was

much more accurate than that of the Greeks. **mathematics, inductive discovery method in** : consists of the following steps : (1) presenting the items of knowledge to help the students to form hypotheses ; (2) presenting evidences to confirm or disconfirm various hypotheses stated by the students ; (3) stating or making a student state the item of knowledge which is a natural inference from steps 1 and 2. Some advocates of this method omit step 3.

Mathematics, Joint Commission, Teaching on (U.S.A.) : The report of the Joint Commission of the Mathematical Association of America and the National Council of Teachers of Mathematics discussed the theory on teaching mathematics in secondary schools through two major publications (1940)—'The Place of Mathematics in Secondary Education' and 'Mathematics in General Education'. It recommended motivating discussions, periodic summaries and reviews and continued practice for promoting insight and spaced learning. It laid down principles for determining a sequence for the presentation of topics. The students should have varied experiences related to major concepts before proceeding to abstract from their experiences and to generalize about the process.

mathematics, practical : that aspect of mathematics that has some use in the everyday life of an individual.

mathematics, research on teaching : It is difficult

to generalize regarding any special type of method or lesson to guarantee success in teaching and learning mathematics. Research has not yet decisively proved that any particular method will produce better results than any other method. It all depends upon the various factors involved—subject matter, teachers, students and schools. There have not been enough studies sampling the different factors, and the findings have not been found consistent even for a particular factor. Mathematics teaching, so far, has remained an art. Much more empirical research is needed before it becomes a science. Among the workers engaged in studies, investigations and research during the last two decades, the following names may be mentioned : Allen (1950), Luchins and Luchins (1950), Schunert (1951), Heineke (1953, 1957), Nichols (1956), Miller (1957), Frick and Guilford (1957), Haslerud and Meyers (1958), Beberman (1958), Wright and Proctor (1961). (Year of publication of the study is shown in parenthesis.)

mathematics, socialized : an approach to the teaching of mathematics so that the subject matter gets closely related to the pupil's environment.

mathematics, 'tell-and-do' method in : it consists of the following steps : (1) stating the item of knowledge to be taught ; (2) clarifying the meaning of the item, if necessary ; (3) justifying the teaching of the item ; (4) clinching the understanding of the item by making the student's work problems ; (5) changing over to the next item to be taught. If any of the five steps is omitted, it becomes another method under the 'tell-and-do' pattern, e.g., omission of step 3 will make it a drill method and omission of step 4 will make it a lecture method.

Mathematics, University of Illinois Committee on : (see 'University of Illinois Committee on Mathematics'.)

matriculation : [derived from the Latin word 'Matricula'] In England, it was originally a ceremony of signing the roll on being admitted to a university, but now the term is usually used for the entrance examination that qualifies for admission to a degree course. In India, the term was formerly used for the examination at the end of class 10th by an examining board.

maturity : the stage of complete growth with reference to form or function of an organism. It may be distinguished from 'maturation' which implies changes towards maturity. 'Intellectual maturity' means practical wisdom

that comes through long experience rather than by study. 'Emotional maturity' stands for emotionally stable behaviour accepted by society for that particular age. 'Social maturity' indicates mastery in social behaviour in terms of human relationship, social techniques and social institutions.

maulavi: a person who by a careful study of the Qor'an and the numerous works on divinity has attained to a high reputation for scholarship. It literary means a person who associates himself with God.

Mausala-parva (Ind.): [lit., club section] the sixteenth book of the *Mahābhārata* containing the death of Krishna and Balarāma and mutual extermination of Yādavas in a series of fights with clubs.

maya (Ind.): illusion or delusion which obscures the vision of the ultimate reality. In the *Upanishads* it represents false knowledge which considers the manifold manifestations of the universe as something different from and independent of the ultimate reality which is *Brahma*. In *Advaita* doctrine, the world of nature is just illusive, a deceptive veil of the one true reality, *Brahma*. In another interpretation, *māyā* causes *moha* (delusion) which makes men believe in the world of senses as real. When the veil of *māyā* across men's perception is removed then only they become conscious of the ultimate reality that *Brahma* alone is real, and thus it leads to *moksha* or salvation.

maze: devices, instruments, or figures containing many pathways or routes of varying complexity, some leading to blind alleys and some towards a goal. The object is to find the most direct route to the goal. Mazes are used to test the abilities of both human beings and animals.

maze running: running in single file to form circle, figure of eight, and various other forms.

maze test: see 'test, maze'.

McNair Report (Brit.): a report (1944) of a committee appointed in 1942 by the President of the Board of Education under the chairmanship of Sir Arnold McNair to consider the supply, recruitment and training of teachers and youth leaders. It recommended that 'the field of recruitment must be widened, conditions of service which deter people from becoming teachers must be abolished and the standing of education must be improved so that sufficient number of men and women of quality will be attracted to teaching as a

profession'. It recommended that teacher salaries should be substantially increased, and it put forward two alternative schemes for the administration of teacher training.

mean, arithmetic: a measure of central tendency obtained by dividing the sum of the measures, observations, scores or items in a series by their number, or frequency. It is also known as 'mean'.

mean, geometric: a measure of central tendency which is equal to the N th root of the product of N values or observations; also called 'logarithmic mean'. It is used in averaging rates of change, ratios, etc.

mean, harmonic: a measure of central tendency adapted to averaging such data as time rates. It consists of the reciprocal of the arithmetic mean of the reciprocals of a series of measures.

mean, weighted arithmetic: an arithmetic mean in which the various items are given varying weights or importance. It is also called 'weighted mean'.

mean deviation: see 'average deviation'.

measurement, educational: measurement applied to educational activities, practices and goals, like marking answers, rating performances and pupil's personality and all other types of testing prevalent in the schools. Measurements are used to help instruction, administration, research and educational and vocational guidance. Measurement may be direct, as the measuring of height and weight, or indirect as the measurement of intelligence or the capacity to learn by measuring the actual learning. The word 'evaluation' implies a more comprehensive concept of measurement for it 'evaluates' the whole personality of the child, and not merely a particular aspect.

measures, comparable: see 'comparable measures'.

mechanical ability: ability to deal with mechanics or mechanical problems. Mechanical ability or aptitude puts greater emphasis on effective understanding of mechanical relationship than on motor skills involved in mechanical work.

mechanical-ability test: a vocational aptitude test for predicting success in jobs requiring mechanical ability.

mechanistic approach: the viewpoint that the processes of living and even of nature have machine-like characteristics and can be fully explained through the laws of science.

mechanical-aptitude test: see 'test, mechanical-aptitude'.

mechanization of administration: the process of direction and control has been so rationalized,

that the work of administration is carried on almost automatically without expending much thought on each problem.

median: the mid-point on the scale of a ranked distribution above and below which there is an equal number of cases or values. It is a measure of central tendency; also called 50th percentile or 2nd quartile, or 5th decile.

medical inspection: inspection ensuring good conditions of health and vitality for each child and safeguarding him from diseases so that he can take the best advantage of school education. In many countries it is a movement almost of national importance.

meditation [*dhyāna*] (*Ind.*): see *dhyāna*.

meetings, teachers': see 'teachers' meetings'.

Megha-raga (*Ind.*): a *rāga* (a class of modal melodies) for a monsoon morning which produces a sense of peace and causes rain.

Meir-Seashore art judgment test: a test devised by N.C. Meir and C.E. Seashore to discover and appraise possible talent. This test samples only a single part of that complex combination of abilities and aptitudes called artistic talent.

memoriter method: any method of teaching or learning which places undue emphasis on rote learning. The word 'memoriter' means by rote or by heart. The method simply connotes arbitrary rote learning through repetition of words. This is never advocated because it uproots the words from their meaningful context. The term is used in a derogatory sense.

memory: It is a function of remembering. The four distinct phases of memory are (1) memorizing or learning, (2) retention, (3) recall, and (4) recognition. The old belief has been long discarded that memory was some kind of 'faculty' which helped the act of remembering. Memory mostly depends on how and what we learn, i.e., on the degree of mastering the material, the nature of the material whether meaningful or not, the emotional involvement both at the time of learning and recalling, the person's interest and intelligence, etc. The absence of factors responsible for memory leads to forgetting. There is a relationship between the amount of forgetting and the time elapsed before recalling. The speed and amount of forgetting is maximum just after learning. Recall or revision at frequent intervals is necessary. The best way of slowing down the process of forgetting is to make the continuous application of learned material in new contexts.

memory span: the amount that can be recalled or reproduced correctly after a single impression.

Mendel's law: the basic principle of inheritance enunciated by Gregor Johann Mendel (1882-

1884), Austrian botanist, according to which given characters (like colour) are inherited according to a definite ratio.

mental aberration: see 'aberration, mental'.

mental age: It is a relative measure of mental growth. For example—if the performance of a five year old child in an intelligence test is as well as that of an average child of seven, his mental age is seven.

mental arithmetic: see 'arithmetic, mental'.

mental deficiency: low intelligence and low level of intellectual development. There are several levels characterized by different ranges of I.Q. At the lowest level is Idiotcy with I.Q. below 25 (Idiots cannot guard themselves against common dangers); Imbecility with 25—49 I.Q. (An imbecile cannot earn a living); Moronity with 50—69 I.Q. (A moron cannot compete with his normal fellows); Borderline Deficiency usually includes persons with 70—80 I.Q. who are slightly below average in intelligence. These levels are conventional.

mental discipline: training or disciplining the mind through the processes of study and intellectual activity. The qualities to be acquired through such discipline are supposed to manifest themselves in the situation in which the mind is used. The theory has not been seriously accepted by students of mental discipline. (also see 'formal discipline'.)

mental disorder: general term referring to the more severe personality disorders or grave failure of adjustment. It includes psychosis and neurosis but usually does not include mental deficiency. In psychological language this term is preferred to mental illness or mental disease.

mental health: the wholesomeness of mind; a positive state of a well adjusted person.

mental hygiene: the study of principles and practices in the promotion of mental health or human adjustment. The original concept of mental hygiene was concerned with the treatment of mental illness. Now the emphasis is on the prevention of mental illness and adjustment of individual to their environment. The schools can promote mental health through wholesome school programmes, proper methods of teaching, right attitude of teachers, fixing priority to mental needs, better understanding of human behaviour, closer contact with children, school guidance programmes, counselling services and child guidance clinics.

mental set: readiness of the individual to organize his perceptions and cognitions in a particular way.

merit-type salary schedule (U.S.A.): see 'salary schedule, merit-type'.

metalcraft : the skill of working with metal and producing objects of utility or of artistic value.
 method, acoustic : see 'acoustic method'.
 method, analytic : see 'analytic method'.
 method, analytic-synthetic : see 'analytic-synthetic method'.
 method anecdotal : see 'anecdotal method'.
 method, Aristotelian : see 'Aristotelian method'.
 method, arm-movement : see 'arm-movement method'.
 mean, assumed : see 'assumed mean'.
 minute, Auckland's (*Ind.*) : see 'Auckland's minute'.
 method, autobiography : see 'autobiography method'.
 method, Baconian : see 'Baconian method'.
 method, biographical : see 'biographical method'.
 method, case : see 'case method'.
 method, cataphorical : see 'cataphorical method'.
 method, chronological : see 'chronological method'.
 method, concentric : see 'concentric method'.
 method, contextual : see 'contextual method'.
 method, conversational : see 'conversational method'.
 method, cross-culture : see 'cross-culture method'.
 method, decomposition : see 'decomposition method'.
 method, demonstration : see 'demonstration method'.
 method, demonstration-lecture : see 'demonstration-lecture method'.
 method, development : see 'development method'.
 method, direct oral : see 'direct oral method'.
 method, eclectic : see 'eclectic method'.
 method, epitome : see 'epitome method'.
 method, equal-additions : see 'equal-additions method'.
 method, experimental : see 'experimental method'.
 method, exploratory : see 'exploratory method'.
 method, extensive : see 'extensive method'.
 method, field : see 'field method'.
 method, genetic : see 'genetic method'.
 method, grammar : see 'grammar method'.
 method, graphic : see 'graphic method'.
 method, inductive : see 'inductive method'.
 method, laboratory : see 'laboratory method'.
 method, lecture : see 'lecture method'.
 method, look-and-say : see 'look-and-say method'.
 method, kinesthetic : see 'kinesthetic method'.
 method, memoriter : see 'memoriter method'.
 method, Montessori : see 'Montessori method'.
 method, objective : see 'objective method'.

method, observational : see 'observational method'.
 method, oral : see 'oral method'.
 method, part : see 'part method'.
 method, phase : see 'phase method'.
 method, phonic : see 'phonic method'.
 method, pick-up : see 'pick-up method'.
 method, problem : see 'problem method'.
 method, project : see 'project method'.
 method, question-and-answer : see 'question-and-answer method'.
 method, recitation : see 'recitation method'.
 method, saving : see 'saving method'.
 method, sentence : see 'sentence method'.
 method, Socratic : see 'Socratic method'.
 method, sociometric : see 'sociometric method'.
 method, spiral : see 'spiral method'.
 method, substitutional : see 'substitutional method'.
 method, supplementary : see 'supplementary method'.
 method, survey : see 'survey method'.
 method, synthetic : see 'synthetic method'.
 method, touch : see 'touch method'.
 method, translation : see 'translation method'.
 method, tutorial : see 'tutorial method'.
 method, visual-motor : see 'visual-motor method'.
 method, Wherry-Doolittle : see 'Wherry-Doolittle method'.
 method, whole : see 'whole method'.
 method of teaching history, regressive : see 'regressive method of teaching history'.
 methodology : the science of methods including the study and analysis of principles that underlie teaching techniques and practices.
 methods of teaching art : see 'art, methods of teaching'.
 methods of teaching foreign languages : see 'foreign languages, methods of teaching'.
 metric system : weights and measures based on units of 10 and sometimes called the metre-litre-gram system. It was devised by the French Academy of Science and was adopted by France at the beginning of the French Revolution.
 microfilm : a filmstrip containing all or part of a printed work, manuscript or reproduction of a work of art reproduced by microphotography.
 middle path [*Madhyama Pratipad*] (*Ind.*) : see '*Madhyama Pratipad*'.
 middle school : the school containing classes that follow the primary or elementary school and precede the last unit of a secondary school. In India a middle school goes upto class 8th and may include primary classes. In public

schools of England, the term is used for those classes of the main school in which students of ages 11 to 13 enter and leave at 16, and in Grammar Schools the term refers to the pre-ordinary-level General Certificate of Education forms. In Canada, the term is used in Ontario for the third and fourth years of the secondary school, i.e., the XI and XII grades.

midpoint of interval: the exact middle of a class interval in a frequency distribution.

milieu: the aggregate of all the environment, physical or social or both, which affect the life, development and behaviour of individuals, groups and nations.

milieu therapy: see 'situational therapy'.

Mimāṃsā (Ind.): one of the six orthodox schools of Hindu philosophy found by Jaimini. Its original purpose was to explain the *Vedas*. It teaches that knowledge alone cannot give salvation, for the soul should also realize itself through religious rituals or action. It is also known as *Purva-Mīmāṃsā* to distinguish it with *Vedānta* which is also called *Uttar-Mīmāṃsā*.

mimesis: the term suggested by Sir Percy Nunn for imitation, sympathy and suggestion. It indicates the general tendency of the individual 'to take over from others, their modes of action, feeling and thought'.

mind: the organized system of all mental processes. It is the something that lies behind our behaviour and controls it. It is difficult to define mind in a universally accepted term because it has been interpreted differently by different psychologists according to their personal lines of interest.

mind [antahikarna] (Ind.): see 'antahikarna'.

mind, collective: a consensus; the sum of mental processes in a group resulting in concerted action or behaviour.

Ministry of Education (Brit.): the ministry established in 1945 by the Education Act of 1944 which replaced the Board of Education. The ministry is headed by the Minister of Education who is usually a member of the cabinet and whose duty is 'to promote the education of the people and the progressive development of institutions devoted to that purpose' and to execute the national policy for providing a variety of and comprehensive education in every area in England and Wales through the local authorities under his control.

Minnesota mechanical assembly test: a test to measure the ability of a person to put together the different parts of mechanical devices. It is based on the assumption that facility in putting together the various parts of a device is related to mechanical ability.

minor (U.S.A.): a term used for the subject in which the undergraduate student is not required to specialize.

Minto's Minute (Ind.): the minute of Lord Minto, the Governor-General of India, submitted in 1811 to the Court of Directors depicting the deplorable decay of Indian education in these words: 'It is a common remark that science and literature are in a progressive state of decay among the natives of India. The abstract sciences are abandoned, literature neglected and no branch of learning cultivated. The immediate consequence of this state of things is the disuse and even actual loss of many valuable books; and it is to be apprehended that unless Government interfere with a fostering hand, the revival of letters may shortly become hopeless for a want of books or of persons capable of explaining them.'

Minute, Elphinstone's (Ind.): see 'Elphinstone's Minute'.

Minute, Macaulay's: see 'Macaulay's Minute'.

Minute, Minto's (Ind.): see 'Minto's Minute'.

Mithilā (Ind.): renowned as a seat of learning from ancient times. In the time of the *Upanishads* it remained a stronghold of Brahmanical culture. At that time the name of Mithilā was Videha under the famous philosopher-king Janak. Under the Kāmeshvara Dynasty (1350-1515 A.D.) Mithilā became famous for its versatile scholar Jagaddhara and the great poet Vidyapati. Mithilā made profound contribution in the field of Logic by developing a school of Nyāya under the great logicians Gangesha, Vardhamāna and Pakshadhara. Mithilā instituted a peculiar system of examination for graduation, known as *Shalākāparikshā*. A needle was pierced through the pages of a Manuscript, and last page pierced was taken up to test the candidate's mastery of the subject. It implied a thorough understanding of each line of the text studied.

mixed relations test: see 'test, mixed relations'.

mixed slant: the look of a handwriting whose upstrokes and downstrokes do not maintain any uniformity of slant.

mneme: the term adopted by Sir Percy Nunn for that enduring quality of the mind which conserves the after effects of experiences or activities, conscious or unconscious. The after-effects of experiences of an individual both in his life time and those of his ancestors remain conserved in the mind and influence the present behaviour. Mneme, used in a wider sense, explains the facts of memory which is merely conscious mneme.

mnemonic devices : any device for assisting in memorizing on the basis of arbitrary associations. For instance, the seven colours of the spectrum, may be remembered by the word vibgyor, or the spellings of 'here' and 'hear' may be distinguished by thinking of 'here—there' and 'hear—ear'.

mobility ratio : the ratio of the number of new teachers joining an institution to the total number of teachers working in it.

mode : a measure of central tendency ; the most frequently occurring score in a frequency distribution. It is also called 'modal average'.

modern school (Brit.) : a type of secondary school established in England following the Hadow Report on 'The Education of the Adolescent' (1926). Full name is 'Secondary Modern School' which provides a four-year course with a wide range of non-academic and practical subjects.

Moghul School of Painting (Ind.) : The school was formed by the merger of Persian, Saracenic and Central Asian art styles and was patronized by the Moghuls with their Persian background. It started with Babur, Humayun and Akbar in the 16th century, and reached its classical period at the time of Jahangir and Shahjahan during the first half of the 17th century, when western influences appeared in the landscape, drapery and cloud effects. By this time painting became an industry with its usual division of labour, like one artist drawing the outline, the second drawing the landscape and the third applying the colours.

molar behaviourism : see 'behaviourism, molar'.

molecular behaviourism : see 'behaviourism, molecular'.

monastery, Buddhist (Vihāra) (Ind.) : see, 'Vihāra'.

monastic school : a school conducted during the middle ages by various monastic orders, primarily for candidates desiring to become members of the order, and later for others.

monitor : in the old sense, an able student who took classes under the monitorial system ; a capable pupil who is selected or elected from the class to assist the teacher in room management or maintaining discipline in his absence or discharging other responsibilities assigned to him by the teacher.

monitorial system : a scheme introduced by Bell and Lancaster early in the nineteenth century utilising older pupils, called monitors, to teach the younger ones for cutting down the cost of education in elementary schools. Under this system the teacher first taught a lesson to the abler students (monitors) who in turn taught the same lesson to very large groups of

other students. The system was abandoned after the middle of nineteenth century. This is also called Lancasterian system. This practice has not been new to India as it was in vogue in ancient India.

Montessori method : a method developed by Dr. Maria Montessori, an Italian educationist, for teaching in pre-primary and primary classes. It consists of free physical activity, extensive motor and sensory training, auto-education, in an atmosphere of freedom and play and makes use of didactic material or apparatus and pieces of handy furniture easily handled by children.

moral character : see 'character, moral'.

Moral Education, Committee on Religious and (Ind.) : see 'Committee on Religious and Moral Education'.

moral instruction : any kind of instruction or training meant to develop character and to promote acceptance of moral standards and rules of right conduct. The instruction may be given formally through direct, regular and systematic instruction according to a syllabus, or incidentally and indirectly through personal examples, occasional incidents and in the course of lessons whenever such opportunity arises. In countries with a recognized State religion it may take the form of religious instruction and in other countries it may have characteristics of character education or civic education. Moral instruction is sometimes referred to as 'moral education'.

morality, external : conformity to group or social standards of morality and right conduct due to the external pressures representing home, school, social influences and legal restrictions.

morality, internal : conformity to group or social standards of morality and right conduct due to spontaneous urge from within originating from one's own sincere convictions.

moral judgment : an ability to discriminate between what is right and what is wrong according to social standards.

mores : moral customs of a people accepted as necessary for their well-being ; a class of norms which specify proper behaviour of great importance to the members of a society. Violation of mores brings strong social disapproval and is drastically punished, often through legal action.

moron : a feeble-minded person having an I.Q. from 50 to 69. (also see 'mental deficiency').

Morrison plan : a five-step teaching plan advocated by H.C. Morrison, consisting of (i) exploration, (ii) presentation, (iii) assimilation,

(iv) Organization and (v) Recitation. The first type determines the pupil's apperceptive background and the mastery of the unit of work ; in the second, the teacher gives a general overview of the whole unit of work : in the third, pupils actively participate, investigate and study the unit and pass a mastery test ; in the fourth, pupils organize the unit into a logical and coherent outline ; and lastly, students who have mastered the unit give a series of talks before the teachers and the class.

Mort plan (U.S.A.) : a plan for State aid devised by Paul Mort under which the State pays the difference between the minimum need of a district and its ability to pay as represented by the yield of its local tax.

motivation : a stimulation to action as a result of a pupil's eagerness to reach a desired goal or to work in a desired manner. Motivation may be intrinsic or extrinsic depending upon whether the goal is developed or recognized by the person himself, or whether it is aroused by outside influences, techniques, devices, offering of rewards, appeal, etc.

motive : a term implying an impulse, drive or need that directs behaviour towards a goal ; often used synonymously with need or drive.

motor coordination : the use of the muscles in a way that all work effectively.

motor expression : see 'expression, motor'.

motor inco-ordination : improper co-ordination of muscles so that they interfere with one another and work ineffectively.

motor learning : see 'learning, motor'.

motor rhythm : the ability to tune body movement to a certain rhythm.

movable seating equipment : see 'seating equipment, movable'.

Mudaliar Commission (Ind.) : see 'Secondary Education Commission'.

mudra (Ind.) : [*lit.*, gesture] a component of bodily position. The term has now come to be used mostly for the *hastā-mudrā*, the symbolic positions of the hands employed in rituals and dancing, and visible in Indian sculptures. Traditionally all *hastā-mudrās* have pictorial meaning. In the language of dance they may denote gods, demons, rivers, trees, animals, birds, serpents, fish, flowers, shell, conch, sun, moon, stars, ecstasy, anguish, love, hate, anger, jealousy and a host of other objects, emotions and ideas. There are 32 major hand positions with twelve hand movements and 24 combined hand positions. The open palm, the hollowed palm, the closed fist and the hand with finger tips are the basic positions for all forms of hand gestures.

Muhammadan rule, education in India during :

In the early period the personal character of the ruler was the most important factor affecting education. If the ruler was of a literary taste, education and learning were encouraged and the royal court attracted poets, philosophers, scholars and literary men. On the other hand if the ruler was devoid of literary tastes, there was a definite set-back in learning. For a time the indigenous system of education was deprived of royal support and patronage which was now directed to the promotion of the new Islamic learning. The old learning was left upon the resources of popular enthusiasm. Though the educational work of the Slave dynasty was undone by Alla-ud-din Khilji, the rulers of the Tughlaq dynasty, particularly Firoz Shah, did much to extend the boundaries of knowledge. In Moghul times education received a great impetus, particularly in the time of Akbar who introduced several innovations in the methods of teaching and curriculum and gave a whole-hearted protection to Hindu learning. Aurangzeb tried earnestly to diffuse Islamic learning though he cared very little for Hindu learning. On the break-up of Moghul Empire education suffered grievously.

Muhammad Shah, education under (Ind.) : ruled 1719-1748. Since the accession of Muhammad Shah to the throne of Delhi great confusion followed in the administration of the country and the interest in public education, which began to languish with the death of Aurangzeb, was almost eclipsed. One redeeming feature of the reign was the great encouragement given to astronomical science by the genius of Raja Jai Singh of Jaipur who constructed observatories in Jaipur, Delhi, Ujjain, Mathura and Banaras. With the invasion of Nadir Shah in 1739 Delhi was given up to arson, pillage and massacre, after which Nadir Shah carried away the celebrated Imperial Library of Delhi alongwith an enormous treasure to Persia. It appears that the royal family continued collecting books even after the loss of their valuable library, and in the reign of Shah Alam II (1759-1806) a decent library existed.

multiple-choice test : see 'test, multiple-choice'.

multiple personality : splitting up or disintegration of the normal organization of mental life into distinct parts or sub-personalities each with its own set of behaviour patterns.

multipurpose school (Ind.) : a school whose idea was envisaged by the Secondary Education Commission (1952-53) appointed under the chairmanship of Dr. Lakshman Swami

Mudaliar in the context of educational reforms at the secondary stage. The Commission condemned the single track system of education and recommended that secondary schools should provide various diversified courses in accordance with the interests and aptitudes of the students. The scheme aims at removing all invidious distinctions between the students preparing for technical and general courses of studies, breaking down the sense of inferiority that is associated with technology and manual labour, and making it possible to attain an educational system on a truly democratic basis. The scheme of multipurpose schools was introduced in India in 1954.

Mundaka Upanishad (Ind.) : one of the *Atharva-Vedic Upanishads*. At one place it explains the distinction between impersonal self and personal self through the parable of two birds bound in friendship, one just looks on, but the other pecks at the sweet fruit and soon is frustrated till the awareness of the impersonal self vanishes its dejection.

muni (Ind.) : literally, one who has taken a vow of silence (*mauna*). The term is frequently used for a *rishi* or sage, engrossed in meditation and contemplation, sometimes possessing supernatural powers.

museum : It adds concreteness to the learning process and provides an opportunity to explore that phase of human civilization and progress which could not be experienced directly. Before visiting a museum the students will find it helpful to know the purpose of the visit, the layout of the exhibits, items for special study and type of reporting to be done after the visit. Schools can also have their own school museums by setting aside some room space, providing neces-

sary shelves, by obtaining or collecting material or specimens from the neighbourhood, homes, private or government agencies and public museums and by classifying, labelling and arranging the exhibits. The school museum should not be a store-house of curiosities but a place to stimulate a desire to learn more about people and things.

Museum, Indian : see 'Indian Museum'.

Museum, National (Ind.) : see 'National Museum'.

Museum, Salar Jung (Ind.) : see 'Salar Jung Museum'.

music history, Indian : Aryans knew the heptatonic scale and hints of a musical theory is first found in the *Sāma Veda*. The *Bhārata Nāṭya-shāstra* composed near 300 A.D. is the earliest Indian authority on music, drama and dancing. In the mediæval period the names of Abhinavagupta, the author of *Nāṭya-shāstra*, Matanga (about 1100 A.D.), Sārangadeva (about 1230 A.D.), and Nandikeshvara (about 1280 A.D.) are famous in music history. During the early years of Muslim rule, there were two broad divisions of Indian music—the *Hindustāni* school of North India deeply tinged by Muslim influence and the *Karnāṭaka* school of the Deccan preserving orthodox Hindu modes. The seventeenth century was marked by outstanding musicians like Tansen (1550-1610), Dikshitar (1614-1640), Ramdas, and Venkatamakhin (called the Pāṇini of *Karnāṭaka* music). The saintly Tyāgarāja (1767-1847) of Tanjore is a great revered name and Bhātkhande is regarded the foremost modern scholar and authority on *rāga*.

music [sangeet] (Ind.) : see 'sangeet'.

musical instruments, Indian : see 'vādyā'.

N

Nadia (Ind.) : a great centre of learning which came to prominence during the reign of Lakshmana Sena (1106-1138 A.D.). Scholars like Halāyudha (the learned prime minister) and Shulapāni (an authority on law), and poets like Jayadeva (author of *Gita-govinda*), Dhoyi and Umāpati built up the reputation of Nadia. After the destruction of Buddhist *viḥāras* at Nālandā and Vikramashila, Nadia got the opportunity of renewing Brahmanical learning under Muslim rulers who did not interfere with the social and educational institutions. The

need for a new centre of learning in Bengal was urgently felt as Mithilā rigidly guarded its treasure of knowledge and did not permit any scholar to take away any manuscript or notes beyond its boundary. Vāsudeva Sārvabhauma of Nadia first met the challenge by committing to memory two important books during his study at Mithilā and reducing them to writing on his return to Nadia.

Nagarjuna (Ind.) : a great Buddhist philosopher born in Andhra probably in the 3rd or 4th century A.D. He is said to be the author of

Rasaratnakāra which laid the foundation of this type of science in India. A great metaphysician converted to Buddhism founded the *Mādhyamika* school of Mahāyāna. To him the cosmic flux is an illusive reality, and even the consciousness of man is a part of the total unreality. Reality is the total absence of character. It is the Middle Path which can neither be conceived nor explained. It is the total negation of entity or identity; it is *Śūnyatā*; it is *Nirvāna*. He spent a large part of his life at *Nālandā*.

Nalanda (Ind.) : an institution of higher learning, situated near the present Patna in Bihar where scholars from all parts of India and from distant countries like East Indies, Turkistan, Mongolia, China, Korea and Tibet came to study. By the 2nd century it was already a well established educational centre. It is said that the number of inmates of the university was 10,000 in the middle of the 7th century. Everyday about 1500 teachers delivered hundred different discourses on diverse subjects. The main subjects included philosophy, logic, tantra, Vedas, medicine, grammar, philology, law and astronomy, and the courses embraced almost all fields of learning : Brahmanical and Buddhist, sacred and secular, philosophical and practical, sciences and arts. The library was housed in three splendid buildings, one of which was nine-storied. It was considered an honour to be associated with this University. The financial system of the University was very sound, even the kings of far off lands like China and Sumatra patronised it. The end of *Nālandā* is shrouded in mystery. Perhaps under the continued state of insecurity and fear caused by the destruction of Odantapuri (6 miles away) by Bakhtyar Khilji in 1199, the scholars started deserting it.

Narcissism : self love ; an abnormal tendency to derive great satisfaction from admiration of one's own body. The term is also used to imply the glorification of one's own personal qualities and deeds.

narcosis : analysis of a person's memories and his emotional problems while he is in a sleeplike torpor under the influence of a sleep-inducing drug.

narcosis : sleep or sleepiness caused by drugs when normal responsiveness to stimuli are very much reduced.

narcotics education : the study of the nature and effects of alcohol and narcotics upon the human body and its bad effects on society. It forms an important part of school health programme in U.S.A. The suspicion

of possible links between smoking and lung cancer has focused greater attention on health education concerning tobacco.

Narendra Dev Committee Report (Ind.) : see 'Acharya Narendra Dev Committee Report (1939)' and 'Acharya Narendra Dev Committee Report (1953)'.

narration : a teaching method advocated by Charles Mason. In this method children reproduce in their own words the substance of what they have read or what has been read to them.

nasality : the quality of the voice having nasal resonance ; m, n, ng (in ring) are generally nasal sounds.

Nasir-ud-din, education under (Ind.) : ruled 1246-1266. Nasir-ud-din Mahmud was a great scholar and lived a life of a hermit. He paid for his food out of his earning from his penmanship. He became a great patron of Persian literature. He established a college at Jalandhar.

National Akademi (Ind.) : the three Akademi —the Sangeet Natak Akademi (Akademi of Dance, Drama and Music), the Sahitya Akademi (Akademi of Letters) and the Lalit Kala Akademi (Akademi of Art)—established by the Government of India. The Sangeet Kala Akademi, inaugurated in 1953, aims at fostering and developing Indian dance, drama (including films) and music and promoting through them the cultural unity of the country. The Lalit Kala Akademi, inaugurated in 1954, has the primary objective of encouraging study and research in painting, sculpture, architecture and applied arts, publishing literature of art and holding national exhibitions of art. The aim of the Sahitya Akademi, inaugurated in 1954, is to preserve the Indian heritage in letters and to stimulate, by awards and distinctions, new writing both original and in translation.

National Awards for Teachers (Ind.) : awards, each consisting of a certificate of merit and rupees 500 in cash, instituted in 1958 with the object of granting recognition to the teachers of outstanding merit. The awards are announced on the Teachers' Day, the 5th September, every year. The scheme covers teachers of primary and secondary schools as well as those of Sanskrit pathshalas and tols.

National Book Trust (Ind.) : an autonomous organization under the Government of India, Ministry of Education, set up in 1957 to promote the book-mindedness among people and wider appreciation of the value of books. The Trust produces and encourages the production

of good literature and makes such literature available at moderate prices ; arranges exhibitions and book fairs ; and holds seminars and workshops on problems connected with the writing, translation, publication and distribution of books. The National Book Fair has already become an important event of the Book Trade in India

National Cadet Corps (Ind.) : [usually abbreviated to N.C.C.] a scheme of training for students in schools and colleges with the object of developing character, comradeship, ideals of service and capacity for leadership, of providing service training so as to stimulate interest in the defence of the country and of building up a reserve potential of officers to enable the Armed Forces to expand in a national emergency. There are : N.C.C. Senior Division open to university or college students under 26 years of age ; N.C.C. Junior Division open to school students between 13 and 18½ years of age ; N.C.C. Girls Division—Senior Wing Troop ; N.C.C. Girls Division—Junior Wing Troop ; and N.C.C. Rifles Unit. A division is divided into Army, Navy and Air Wings. Though the N.C.C., at first sight, appears to be military in character, the movement is essentially educational. The scheme is operated by the Ministry of Defence in collaboration with State governments through the Directorate General of National Cadet Corps.

National Committee on Women's Education (Ind.) : a special committee appointed by the Govt. of India in 1958 under the chairmanship of Shrimati Durgabai Deshmukh, Chairman, Central Social Welfare Board, to examine the whole question of women's education. It submitted its report in 1959. Among the special recommendations needing top priority were : (1) The existing gap between the education of men and women should be closed in as short a time as possible ; (2) A National Council for the Education of Girls and Women should be set up ; (3) The State Government should also set up State Councils for the education of girls and women ; (4) The Planning Commission should make estimates of the woman-power requirements of the Five Year Plans ; (5) Co-operation of all semi-official organizations, local bodies, voluntary organizations, teachers' organizations and public should be enlisted. Other recommendations covered education of girls in different age groups, wastage and stagnation, curricula, training, vocational education, adult education, administration and finance.

National Council of Educational Research and

Training (Ind.) : [usually abbreviated to NCERT] an autonomous organization, under the Government of India, Ministry of Education, set up in September 1961, to promote, organize and foster research in all branches of education, to organize advanced level training, to disseminate knowledge, and to act as a clearing house. It undertakes special studies, surveys, and investigations. The Council has established the National Institute of Education (NIE) to carry out its objective, and to serve as the chief institutional agency for developing research, advanced training and extension services. The NIE has several departments and units such as : the Departments of Psychological Foundations of Education ; Educational Administration ; Science Education ; Basic and Elementary Education ; Audio-Visual Education ; Instruction ; Curriculum, Methods and Text-books ; and others. The Governing Body of the Council consists of the President of the Council (Union Minister of Education, ex-officio), Vice-President (Educational Adviser, ex-officio) and 9 other members. The Council has published three Indian Year Books of Education—the first devoted to a Review of Education in India (1947-1961), the Second on Elementary Education and the Third on Educational Research. The Fourth will be on Secondary Education.

National Discipline Scheme (Ind.) : a scheme first introduced in July 1954 by the Ministry of Rehabilitation to arrest indiscipline in refugee camps and colonies established after the partition of India. Its implementation helped it to be extended to a large number of schools throughout the country. It aimed at improving physique, developing character and inculcating cultural sensitivity. The scheme has now been discontinued as a result of reorganization of physical education in schools.

National Federations of Games : federations or associations affiliated to International Federations for their respective sports and games, through which they derive the supreme authority to control their individual sports in the country. They have their constituent associations in the States through which they exercise control over all clubs and tournaments in the country. They are responsible for promoting and developing their respective games and for selecting their teams for the Olympic Games, Asian Games and other international contests. The important National Federations in India are : (1) The Indian Hockey Federation (founded 1928), (2) The All-India Football Federation (founded 1937), (3) Swimming Federation of

India (founded 1940), (4) Amateur Athletic Federation of India (founded 1944), (5) Volley-ball Federation of India, (6) Basket-ball Federation of India, (7) Wrestling Federation of India, (8) Gymnastic Federation of India, (founded 1951), (9) National Rifle Association of India (founded 1953), (10) Indian Amateur Boxing Federation, (11) Indian Weight-lifting Federation.

National Foundation for Educational Research in England and Wales (*Brit.*): an organization founded in 1945 to encourage and organize research in the various fields of education in England and Wales.

National Foundation for Teachers' Welfare (*Ind.*): a foundation set up in 1962 under the Charitable Endowments Act, 1890, to provide relief to the teachers and their dependents in distress and also to sanction *ex-gratia* grants to such teachers, after their retirement, who may have rendered exceptionally meritorious service. The funds of the Foundation are made up of the contributions paid by the Union and State Governments, and of the collections made on the Teachers' Day celebrated on the 5th September every year. The management and administration of the Foundation is under the charge of General Committee set up under the chairmanship of the Union Education Minister. The State Governments can spend 80% of their collections for teachers' welfare in their areas, and the balance of 20% is credited to the corpus of the Foundation, the target of which has been fixed at Rs. 5 crores.

National Gallery of Modern Art (*Ind.*): the Gallery opened in 1954 at Jaipur House in New Delhi by the Government of India. It has a collection of about two thousand art objects mainly paintings, sculptures and graphics representing more than three hundred artists. It is equipped with an excellent Art Reference Library. The Gallery represents the evolution of the changing art forms through the passage of the last one hundred years starting from about 1857. The exhibits in the first floor starts with the Company period and ends in Bengal School. The contemporary works are displayed in the ground floor.

National Institute of Education (*Ind.*): see 'National Council of Educational Research and Training'.

National Library (*Ind.*): a national library developed from the Imperial Library in Calcutta after the independence. Its history goes back to 1891 when the Imperial Library was formed by the integration of a number of departmental libraries. Again, in 1902, the Calcutta Public

Library was amalgamated with the Imperial Library, and in 1948, the name was changed from 'Imperial' to 'National' when it was shifted to its present spacious building. The library is provided with Reading Rooms (500 seats), Lending Section with All-India Clientele and a Readers' Hostel for outstation research scholars. The Delivery of Books (Public Libraries) Act 1954 and subsequent amendment enables this library to receive a copy of every book and periodical published in India.

National Movement in Education (1905-21) (*Ind.*): the movement demanding national education which became more pressing with the growth of the national movement during the early part of the 20th century. Indian leaders began to condemn the official system in vogue and demanded Indianization of education. In Bengal, a Society for the Promotion of National Education was formed under the chairmanship of Guru Das Banerji. Rabindranath Tagore, Rashbchari Ghosh and Aurobindo Ghosh also took up the cause of national education. Swami Shradhanand established a Gurukul at Hardwar. The main emphasis of the educational movement was on (1) Indian control of education; (2) Indian ideals of education; (3) Reverence for the motherland; (4) Growth of Indian languages; and (5) Development of technical and national education.

National Museum (*Ind.*): the museum whose beginning was made in 1949 when it was set up in the Rashtrapati Bhavan (President's House) as a concrete expression of India's greatness in culture and art. It shifted to its new spacious building in 1960. The collections begin with pre-history in India. A large representation of protohistory (the Harappan Culture, c 2500—1500 B.C.) includes sculpture, seals, bronze, jewellery. With Asoka (3rd century B.C.) the historic period of Indian art opens. Fine sculptures in stone, terracotta and bronze illustrate the periods and schools of all parts of the country from that date through 18th century. Other arts, such as paintings, illuminated manuscripts in Sanskrit, Persian, Arabic and many Indian languages; coins, arms, decorative arts, including textiles, jewels, jades, and decorative wood carving trace the country's rich traditions upto 1857. Costumes, ornaments and articles of daily use from the different regions and tribes of India, and a collection of Central Asian Antiquities recovered by Sir Aurel Stein are beautifully displayed.

National Physical Efficiency Drive (*Ind.*): a programme based on precise and carefully graded physical efficiency tests, launched in 1959-60

through the State Governments. It helps to activate and promote interest in physical fitness throughout the country by arousing enthusiasm of the people for achieving higher standards of physical efficiency.

National Policy on Education (1968) (Ind.): the National Policy on Education announced by the Union Education Minister in July 1968. The policy was evolved after a broad consensus of opinion among vice-chancellors of Indian Universities, leading educationists, State Education Ministers and other representative interests. It is for the first time since Independence that a National Policy on Education has been published which provides an avowed outline of educational development in important fields. The National Policy on Education has laid stress in equalization of educational opportunity and provision of good educational facilities in rural and backward areas. The resolution recommends raising the investment in education from the present level of about 2.7 per cent to 6 per cent of the national income. It has recommended a uniform educational structure in all parts of the country, with the ultimate objective of having a 10-year schooling period up to the high school, a two-year higher secondary course and a three year period for the degree course. The resolution accords a high place to science and mathematics.

National Science Talent Search Scheme (Ind.): a scheme formulated and conducted by the National Council of Educational Research and Training through its Department of Science Education, since 1964, with the following objectives: to identify students at the close of secondary stage who possess a marked aptitude for science; to stimulate scientific talent by a competitive process and to help meritorious students to pursue courses in basic sciences by the award of scholarships from B.Sc. to Ph.D. stage; to encourage schools to take more active interest in the search for scientific ability; and to help in building up a body of future scientists.

National Service Committee (Ind.): a committee appointed by the Government of India in 1959 under the chairmanship of Dr. C.D. Deshmukh, Chairman, University Grants Commission 'to revise the scheme of national service prepared by the Ministry of Education in the light of the views expressed by the Education Ministers' Conference'. It submitted its report in 1960. The important recommendations were: (1) It should inculcate a sense of discipline, a spirit of social service, dignity of manual labour and dedication to the cause of the country; (2) It

should be compulsory; (3) The best stage for one year's national service would be when the students pass out of higher secondary school or pre-university class; (4) The programme should include military discipline, social service, manual labour and general education; (5) A national board should be set up to plan, implement and evaluate the programme.

National Union of Teachers (Brit.): [usually abbreviated to N.U.T.] teachers' association open to all types of teachers but mostly consists of teachers from primary and secondary modern schools. Masters in grammar schools have their own association named 'Assistant Masters' Association' (A.M.A.).

natural consequences: logical outcomes of a given situation resulting in natural punishment and natural reward. It is like Nature's lesson where right doing is connected with pleasure and wrong doing with pain. Rousseau in his book *Emile* made natural punishment as a part of his instruction. If *Emile* carelessly destroyed a neighbour's budding beans by trampling over it, his punishment was to restore the beans through tilling the garden, replanting the beans and tending the crop. The theory of natural punishment though eliminates the personal element, suffers from obvious limitations: the punishment may not be proportionate to the offence; it may not be practical in all cases; and it may fail to have a direct impact and lose its effect.

naturalism: an educational philosophy which lays stress on the operation of natural forces and natural laws. It recognises the existence of natural developmental stages in the child and stresses the importance and the need of education in harmony with natural human development, learning by activity and experience, self imposed discipline and development from within rather than from without.

natural sciences: subjects which according to the classification used by Unesco includes astronomy, bacteriology, bio-chemistry, biology, botany, chemistry, entomology, geology, geophysics, mathematics, meteorology, mineralogy, physics, zoology and similar subjects.

nature-nurture: a term commonly used while discussing the relative importance of environmental and hereditary factors that play their respective role in the development of an organism.

nature study: the first study of science particularly about plants and animals. The study may also cover all other natural objects and phenomena including rocks, minerals, the stars and weather. It cultivates an intelligent interest in the world around, develops the power

of observation and discrimination and brings one into close contact with Nature.

N.C.C. : see 'National Cadet Corps'.

NCERT (*Ind.*) : see 'National Council of Educational Research and Training'.

near point of accommodation : the nearest point at which an object can be perceived clearly depending on the accommodating power of the eyes.

near point of convergence : the nearest point at which the visual lines of the two eyes can meet, which is usually about 3 inches from the mid-point between the eyes.

need : any lack or deficit of something within the individual, either acquired or physiological whose fulfilment would tend to promote the welfare of the individual. In special context the term is synonymously used with drive or motive. The idea of a need is also implied in terms like want, desire, and craving, each with specific meanings.

negative attitude change : a change in attitude in the direction opposite to that advocated persuasively.

negative character trait : see 'character trait, negative'.

negative education : a concept introduced by Rousseau who states, "The first education then ought to be purely negative. It consists not at all in teaching virtue or truth, but in shielding the heart from vice, and the mind from error. If you could do nothing and allow nothing to be done, if you could bring your pupil sound and robust to the age of twelve years without his being able to distinguish his right hand from his left, from your very first lesson the eyes of his understanding would be open to reason."

negative practice : an effort to eliminate an undesirable behaviour by voluntarily practising it. Negative practice probably brings the response or undesirable behaviour to the level of consciousness so that voluntary control can be effected.

negativism : a type of behaviour or tendency in which a person does not do what is asked or suggested, and even does just the opposite. Active negativism is doing the opposite of what is suggested and passive negativism is not doing what is normal or expected. It is common among pre-school children and decreases after 5. It may be due to the children's desire to assert their independence or to get attention. In such a situation it is better to avoid arguing, to phrase the command in a way that may ensure compliance, or to ignore resistance if it becomes necessary.

negligence : a failure to act as a reasonably intelligent and careful person is supposed to act in the given situation. It implies some amount of ability to foresee difficulties and consequences and to anticipate dangers. Leaving a dangerous or poisonous chemical at a place easily accessible to the students and failing to take immediate precautions regarding exposed live wires, are examples of negligence, as a reasonable prudent person would have foreseen that these might lead to accidents.

neohumanism : a revival of the Greek literature in the secondary and higher institutions of Germany in the late eighteenth and early nineteenth century.

neologism : coining new words or making altogether a new use of the current words.

Neoplatonism : a philosophy attempting to reconcile the philosophy of Plato with the teachings of Bible during the early part of the Christian era.

nervous system : the organic system in the body composed of nerve tissues. The anatomical or structural scheme of the system consists of the brain, the spinal cord and the peripheral nerves (all outlying nerve structures) incoming from sense organs and outgoing to muscles. The functional scheme of the system consists of autonomic division and somatic division. The autonomic division is composed of clusters of nerve cells which innervate the heart, smooth muscles and glands. The autonomic division or system has two functional subdivisions—sympathetic and parasympathetic. The sympathetic function accelerates heart-beat, inhibits digestive and genital action and dilates the pupils of the eyes, while the para-sympathetic function does the opposite, i.e., retards heart-beat, stimulates digestive and genital action and constricts the pupils. The antagonism of these two functions is apparent in the emotional and behavioural experiences of love and anger, fear and appetite, joy and grief. The somatic division consists of all the nerve structures not in the autonomic system.

net, communication : see 'communication net'.

Neti-neti (*Ind.*) : [lit., 'Thou art not this, not this'] a great saying from the *Bṛihadāranyaka Upanishad*, defining the Universal Essence in purely negative terms. The Self or the *Brahma* is incomprehensible, imperishable, unattached, unfettered ; it does not suffer, it does not fail, it is 'not this', 'not this'.

neurosis : a mental disorder often characterized by anxiety, hysterical behaviour, phobias and mannerism. It is milder than psychosis and is not so severe as to require treatment in a

mental hospital. Neurotic is that which pertains to neurosis, or refers to a person who is maladjusted or unbalanced.

Newcastle Report (Brit.) : a report (1861) of the Royal Commission appointed in 1858 under the chairmanship of Henry Pelham Duke of Newcastle 'to inquire into the present state of Popular Education in England and to consider and report what measures, if any, are required for the extension of sound and cheap elementary instruction to all classes of the people'. The only recommendation of the Commission adopted by the government was 'payment by results', i.e., grants to schools should be based on the attainment of the pupils as assessed by a government inspector.

Newsom Report (Brit.) : a report of the Minister of Education's Central Advisory Council for England under the chairmanship of Mr. John Newsom 'to consider the education between the ages of 13 and 16 of pupils of average or less than average ability'. The report entitled '*Half Our Future*' was published in 1963. It recommended the raising of the school-leaving age to 16, the need for a more exacting programme in the last years of school life and for a longer school day, the removal of functional deficiencies of the schools and the improvement of teacher training.

newspapers : Reading relevant portions from the newspapers and periodicals is becoming an important part in the collateral reading programme in many subjects like Social Studies, English, Hindi, Science, Civics, Economics. Teachers help the students in reading, analyzing, discussing and criticizing news and thus teach to read critically. Comparing accounts in different newspapers, checking headlines against facts, selecting the most important news items for the daily newsboard, preparing albums or scrap books from news clippings, pictures and photographs, and to read further for better understanding of a current event or problem are some of the ways the newspapers and periodicals are used. They provide interesting and important fund of information, vitalize school studies and bring the students close to reality.

NIE (Ind.) : [abbreviation of National Institute of Education] see 'National Council of Educational Research and Training'.

Nirvana (Ind.) : a Buddhist term for the state of final bliss, of liberation. *Nirvāna* has been defined as 'a glorious city, stainless and undefiled, pure and white, unaging and deathless, secure, calm and happy', reached by the Buddhas and perfected beings. It is held up as the chief

object of Buddhism.

niyama (Ind.) : [lit., observance] They are five : (1) *Shaucha*, purity which may be both external (with reference to body and food) and internal (with reference to mind); (2) *Santosha*, contentment implying the desire to have no more than is necessary for bare maintenance of life; (3) *Tapas*, penance implying the capacity for enduring extremes; (4) *Svādhyāya*, studying literature for salvation and repeating mantras; (5) *Ishvara—pranidhāna* implying consecration of the fruits of all actions to God. **no data** : a term used when no answer worth standardization is received in response to a questionnaire or test item.

nominalism : the belief that reality consists in concrete objects that can be perceived rather than in ideas, concepts and abstractions.

nominal scale : a scale in which numbers or letters are assigned to objects or persons only for distinguishing between those that are alike and those that are different.

non-directive counselling : counselling based on the assumption that the counsellee has the capacity to solve his own problems. Here, it is the subject who first feels the necessity of a counselling situation. The counsellor merely helps the subject in arriving at his own conclusions of problems. It is the subject who does most of the talking. The counsellor encourages the individual to express freely and he clarifies the problem or the situation.

non-directive therapy : therapeutic approach in which the patient takes an active role and which places primary responsibility for direction on him. The method is based on the assumption that the client must learn to solve his own problems. Stress is on the individual rather than on the problem.

non-dualism [advaita] (Ind.) : see '*advaita*'.

non-graced [aparigraha] (Ind.) : see '*aparigraha*'.

non-language test : see 'non-verbal test'.

nonsense figure : a set of lines, marks, or outlines having little or no meaning.

nonsense rhyme : a rhyme which has no substantial meaning in it, but whose rhythm and sound of words greatly appeal to little children.

nonsense syllable : syllable usually of three letters, which can be pronounced but has no particular meaning. It is extensively used in psychological research.

non-teaching personnel : see 'personnel, non-teaching'.

non-test tool : an instrument other than a test used in measuring pupil behaviour.

non-verbal test : see 'test, non-verbal'.

non-violence [*ahimsa*] (*Ind.*) : see 'ahimsa'.

non-vocational : concerning activities of practical arts designed to enrich general education rather than to train persons for a vocation.

norm : the median or average performance on standardised tests of a specified population ; the standard for judgment.

normal : typical in progress, growth, development, or distribution.

normal curve : the graphic representation of a large number of cases in the selection of which pure chance is operative.

normal distribution : a symmetrical distribution in which the quantities are distributed in such a manner that a normal probability curve is the best fitting curve.

normalization : method used to establish norms for standardized tests.

normal probability curve : a curve representing the distribution of a large number of observations of a continuous variable subject to the laws of probability, resulting in a symmetrical, bell-shaped curve with gradual tapering towards the ends. The mean, median and mode coincide with one another.

norms, age : see 'age norms'.

Norwood Report (*Brit.*) : a report of the committee of Secondary Schools Examination Council, under the chairmanship of Sir Cyril Norwood, on Curriculum and Examinations in Secondary Schools. The report, published in 1943, recommended the tripartite division of secondary education into grammar, technical and modern schools, the provision of diagnostic two-year period (11+ to 13+) in the 'lower school' for dealing with cases of late development or failure to fulfil promise, and the replacement of school certificate examination (conducted by the University Examining Boards) by subject examinations as an interim step towards internal examinations to be conducted by schools themselves.

nosophobia : a morbid fear of becoming ill.

note-books : books in which to write. Students keep note books for effective class and home work. The note books are used for class notes, directions for work, notes from books read, and for working out assignments which are checked and guided by the teachers. The note books reflect the quality and quantity of work done by the students and guidance received from the teachers. Students should be taught how best to make use of the note-books which help to develop skill of effective note-taking from what they hear or read to train in good and regular work habits, and to encourage neat, accurate and systematic written work.

Nuffield Junior Mathematics Project (*Brit.*) : a project begun in 1964 and financed by the Nuffield Foundation in response to the need of producing a course of mathematics for children aged 5 to 13. It is designed to introduce children to the process of abstract thinking and to encourage a critical, logical and creative reasoning. The programme was tested in a wide range of schools after a year of intensive in-service training for teachers in the pilot areas. The stress is rather on how to learn and not on what to teach, for the children must be free to make their own discoveries and to think for themselves.

Nuffield Science Teaching Project (*Brit.*) : a science teaching project begun in 1962, and financed by the Nuffield Foundation in response to the need for a renewal of the science curriculum and for a wider study of imaginative ways of teaching science, as pointed out by many school teachers and a number of organizations in Britain. The programme first tackled the teaching of O-Level physics, chemistry and biology, and then it was extended to cover the teaching of science in sixth forms, in primary schools, and in secondary school classes not preparing for O-Level examinations. It aims to develop materials and prepare books which will help teachers 'to present science in a lively, exciting, and intelligible way'. The project demonstrates that the continuing renewal of the curriculum should be a major educational objective.

null hypothesis : a hypothesis which is logically contradictory to a certain hypothesis which is being tested. If the null hypothesis is proved false, its contradictory hypothesis is thereby proved true.

number fact : the result of combination of two numbers, like, $4+6=10$, $9-3=6$, $7 \times 2=14$, $6 \div 2=3$.

numeracy : the knowledge of scientific and related subjects which a well educated person is expected to possess. This term was invented by the authors of the Crowther Report issued in 1959 by the Central Advisory Council for England. The Education Commission (1964-66) of India has defined it as a study of mathematics and natural sciences.

nursery education : education of children in the pre-school age (usually between 2 and 5 years) emphasizing physical, motor, emotional, aesthetic, intellectual and social development, and formation of desirable habits.

nursery school : a school for very young children usually between the ages of 2 to 5 years. The first infant school was opened in France in 1760 by John Frederick Oberlin. Grace

Owen and Margaret McMillan started the modern nursery school movement in England in 1908. The first day nursery in the U.S.A. was opened in 1854. Day nursery is an institution established to give day care to the child of the working mother and therefore different from a nursery school. A nursery school has characteristic of both the nursery and the school. A nursery school provides a pool of equipment beyond the possibilities of the home, occasion to be among companions, and opportunity for free play. In fact, it is concerned with the optimum development and adjustment of the individual child as a member of a group.

nurture : all environmental influences, whether of education, training or physical growth and

metabolism that affect and determine the development of a child. Some believe that men widely differ in abilities and intellectual attainments because of differences in nurture and not because of inheritance.

nutrition : the science of providing adequate and appropriate food for the growth, maintenance and repair of an organism.

Nyaya (Ind.) : one of the six orthodox schools of Hindu philosophy first formulated by the philosopher Gautama. It is primarily concerned with logic and epistemology. It is also called Tarka-vidyā (science of reason) or Vāda-vidyā (science of discussion). It teaches that ignorance is the root of all suffering and only true knowledge can bring salvation.

nyctophobia : a morbid fear of darkness.

O

objective approach : an approach to the study of a topic or subject purely on factual basis without any personal opinion or prejudice influencing the judgment.

objective method : a method of teaching ideas, concepts or actual meaning of a thing by the use of concrete experiences and sense perceptions. It takes many forms. At first it implied the bringing of pictures and objects into the classroom. Later it included school trips, laboratory work, dramatization, audio-visual aids and self-activity.

objective test : a test requiring short answers which can be scored objectively by a key of correct answers so that the personal element in scoring is entirely removed. It usually consists of completion, alternate response, multiple-choice, or matching-type questions.

objectivity : a judgment untarnished or unaffected by personal opinion, feeling or bias ; an examination criterion indicating the degree to which subjective opinion and judgment are eliminated in the process of scoring it, so that almost the same scores would be assigned by different but equally competent examiners. The term applies to the type of test and the scorers or examiner and not to the testee.

object teaching : a method of teaching derived from the work of Rousseau who advocated the use of real objects which the pupils may see, handle, smell and use. Pestalozzi who enthusiastically followed Rousseau made "sense impression" his watch-word, for he

considered real objects and observation more important than words and memorization. Object teaching became almost a fad in 1870's and 1880's. Today object teaching has been greatly improved and modified by the use of television, motion picture, models and pictures. Limitations of real objects with reference to its size and availability have been overcome, since its picture or model (as of the Tajmahal) can be brought into the classroom.

observation : the process of observing activities for collecting verbal, or numerical values. The results of the observation may be descriptive or quantitative.

observation, ABC of : a phrase used by Pestalozzi who wrote, "There unfolded itself gradually in my mind the idea of an ABC of observation to which I now attach great importance." He developed the observational method in the teaching of subjects like history, geography and language. Observation was considered the ABC or the very basis of a general method of instruction.

observation directed : see 'directed observation'.

observation one-way vision : a technique of observation in which the observer can watch the children without their knowing it. It is very useful in studies of child behaviour.

observation, participant : see 'participant observation'.

observational method : a method used for the study of child behaviour or personality by accurately observing and recording what an

individual actually does. For such observations mechanical aids like charts, check lists, automatic motion-picture, camera and sound recording equipment may prove very useful.

observation lessons : term used in teacher-training for those lessons given by pupil-teachers which are observed by other pupil teachers for noting the merits and demerits of teaching. The comments or criticism of the lesson are later discussed with the supervisor or teacher incharge of the particular group of pupil-teachers.

obstacle sense : the sense or ability to avoid obstacles, as found developed among the blind.

occupational information : a term used in vocational guidance, referring to facts concerning the importance of the vocation, its entrance requirements, opportunities for promotions, health and accident hazards, compensation and other working conditions.

occupational therapy : see 'therapy, occupational'.

ocular-neck reflex : see 'reflex, ocular-neck'.

Odantapuri (Ind.) : a seat of learning said to have been founded by Gopala, the first king of the Pāla dynasty of Bengal about the middle of the 8th century A.D. though some refer to an earlier date. It was famous as a stronghold of Tāntric Buddhism. At the time of Abhayarakagupta about 1000 monks resided in the university. It is well known for its famous scholar Prabhākara. The first Buddhist monastery in Tibet was built in 749 A.D. on the model of this university. The university along with its splendid library was totally destroyed by the invasion of Bakhtyar Khilji in 1199 A.D.

oedipus complex : a complex in which the attachment of a child for the parent of opposite sex is abnormally strong. Though it specially refers to the attachment of a boy for his mother but in a broader context it also includes the attachment of a girl for her father, specifically termed the 'Electra complex'. Psychoanalysts believe that the repression takes place very early in childhood and is almost universally manifested in various forms.

ogive : a double bend curve, roughly like an S, graphically representing a cumulative frequency distribution in which the frequencies are expressed in terms of percentages. It is also known as 'cumulative frequency graph' or 'cumulative percentage curve'.

Olympic Games : the games believed to have originated in Greece about 1370 B.C., though no records exist before 776 B.C. The Ancient Olympic Games were a part of a great Greek

religious festival which took place every four years at Olympia. The actual games were spread over a period of four days beginning with the two opening events—the Chariot Race and the Horse Race—and followed by Pentathlon consisting of a foot race, the long jump, wrestling, throwing the discus and throwing the javelin. The Ancient Olympic Games were abolished in 393 A.D. by the Emperor Theodosius I as the pagan festival had no place in the new Christian world. After a gap of nearly 1500 years, the enthusiasm of a French man revived the games in Athens, Greece in 1896, the beginning of the first Olympiad of the modern era. Since then Olympic Games have been held every four years, except during the two World Wars, every time in a different place.

Om (Ind.) : the most solemn of all powerful *mantras*. This mystic syllable is fully discussed in *Māndukya Upanishad*. It is made up of three sounds 'a' 'u' 'm', which represent the three *Vedas* (*Rig*, *Yajur* and *Sāma*), the three principal deities (*Brahmā*, *Vishnu*, *Shiva*), and the three worlds (heaven, atmosphere and earth). The mystic syllable is used for invocations and blessings and in prayer, meditation and work. All power, wisdom, sound, energy, and vibrations are said to stem out of 'Om'.

omnibus question : a type of question which admits many answers which the teacher cannot reject simply because he meant or expected a particular response.

one-teacher school : a school with one teacher for all pupils and all classes. This type of school may be possible in rural areas for primary classes. Sparsity of population, paucity of funds and long walking distance to reach a big school necessitate the opening of one-teacher school though it is less efficient or advantageous than the consolidated school. One-room school is a synonymous term.

one-way vision observation : see 'observation, one-way vision'.

only child : a child who does not have a sister or brother. Statistically no reliable difference has been found between 'only' and 'other' children. Some studies, however, have shown that 'only' children appear to be slightly less extrovert, less self-dependent, and to be a little more ambitious and irritable than other children. No difference is visible when the only child is not pampered.

open-air school : a school providing open-air classes originally meant for children with health problems. The first open-air school was opened in Germany in 1904 by transferring a large

number of children from ordinary elementary schools to special backward classes. The school was opened for the backward children having physical defects. The doctor arranged for open-air conditions, careful supervision, suitable diet, exercise and rest. Results achieved were quite encouraging. The first open-air school in England was established in 1907 and in America in the year 1908.

open day : the day when the school is open to visitors to see school activities and exhibitions arranged for them. Physical education programmes, dramas, music recitals, variety shows may also be put up. Sometimes annual prize distribution function of the school is arranged on the day.

open end question : a question which allows the respondent to answer freely in his own words.

open-shelf library : a type of arrangement in the library which permits the visitors free access to the library shelves, so that one can pick up any book from any shelf for reading or merely browse among books.

open tournament : tournament in which entries are not restricted by certain rules of eligibility.

ophthalmograph : an instrument of making motion-picture records of eye-movements during silent reading.

opinionaire : a questionnaire prepared to elicit opinions or attitudes instead of facts.

optimum level : the level of learning and achievement that may result from efficient methods and consistent effort.

oral inactivity : lack of proper movement of tongue, lips and jaw while speaking generally caused by defective voice quality and defective articulation.

oral instruction : teaching through the medium of speech.

oral method : a method for the development of oral reading.

oral recall : see 'recall, oral'.

oral stage : the stage during which an infant's satisfactions centre round his mouth and sucking.

oral test : a test in which questions are asked and answered orally.

oral work : an important work in language study which helps to correct pronunciation and oral speech, encourages clarity of thought, overcomes shyness, and paves the way for written work. Question and answer method, description of a picture or object, narration of a story, recitation, debating and dramatization offer occasion for oral work.

order of merit : any set of ranks, or a series of observations arranged according to their relative

values or magnitudes, either from highest to lowest or from lowest to highest.

ordinal scale : a scale in which numbers are assigned to objects or persons for ranking them on the basis of some quality or magnitude.

organization : the process or the outcome of arranging different elements into a functional whole for achieving a certain objective.

organization, school : the process of harmonizing the different elements of a school and ensuring effective relationship among students, staff and community for obtaining maximum educational results.

Oriental-Occidental controversy (Ind.) : the controversy that continued during the period 1823-1839 among the officials of the East India Company regarding the methods to be adopted for the intellectual improvement of the people of India, necessitated by the provision of at least one lac of rupees every year in the Charter Act of 1813. The parties to the controversies were the 'Orientalists' or 'Classicists' and 'Occidentalists' or 'Anglicists'. The former were in favour of educating the upper classes of the Indian people through the medium of their classical languages and the latter through the medium of English. Lord William Bentinck's proclamation (1835) approved of Macaulay's Minute and directed that funds would be utilized for popularizing English literature and science through the medium of the English language.

orientation : the process of familiarizing a person with all the aspects of a school environment, like rules, curricula, conventions, etc., to facilitate quick and effective adaptation.

orthopedic school : a school for crippled children with appropriate and adjustable school furniture, special apparatus and equipment for physiotherapy and corrective exercises.

outcome : a change in behaviour as a result of experience; in a broader sense, the result or outcome of learning.

out of school activities : activities organized by a school but carried on out of school hours by clubs or group of pupils. The term is used for hobbies like debating, music, photography, and philately. This normally does not include games and sports.

out-of-school youth : a child who is within the compulsory school age but has been excused from attending school, or who has crossed the compulsory school age and is not studying in a school.

outward vocalization : see 'vocalization, outward'.

overage : chronologically older than the normal age for entering a certain class.

overlapping : the extent to which scores or observations in two distributions fall within the same range.

overlearning : learning facts or skill through more or longer practice than necessary for immediate recall or immediate performance of a work, which would help in delayed recall or use of skill.

over protection : providing greater care and protection to a child than is necessary with the result that he is deprived of participating in many activities of life and experiencing the

realities of living. Such a child finds it difficult to act independently or to cope with the hazards and discomforts of daily life.

Oxbridge : a semi-colloquial term used for two English universities of Oxford and Cambridge, which were established in the Middle Ages. The semi-colloquial term used for a modern university (as contrasted with Oxbridge) is 'Redbrick University'.

Oxon (*Brit.*) : a member of the Oxford University; pertaining to Oxford. It is an abbreviation based on the Latin word 'Oxonia'.

P

paediatrics : branch of medicine that deals with the diseases of children. 'Paediatrician' is a physician who specializes in paediatrics.

paedocentric education : another term for child centred education. (The adjective is also spelt as paidocentric.) It suggests that the child is the focus of education and not the curriculum. Paedocentric tendencies are noticeable in methods like Dalton Plan, Montessori Method and Project Method.

paedagogus : the slave who accompanied the young boy to school in ancient Athens, carrying his lyre and other things. The slave was responsible for the behaviour and morals of the boy whom he could whip, if necessary, for enforcing discipline.

pagan school : a Roman school of the 6th century where literature and knowledge of the earlier Greeks and Romans were taught. This was in contrast to a Christian school where religion was chiefly taught.

Pahari school of painting (*Ind.*) : school directly influenced by the Moghul, Gujarāt and Rājput schools, and patronized during 18th and 19th centuries by the rulers of the mountainous regions of Chambā, Kāngrā, Kulu, Garhwāl and Mandi. The school had many individual characteristics making free use of brilliant colours and using simple composition and sentimental themes, mostly centred round Rādhā and Krishnā.

painting, Mughal school of : see 'Mughal school of painting'.

painting, Pahari school of : see 'Pahari school of painting'.

painting, Rajasthan school of : see 'Rajasthan school of painting'.

painting, six limbs of (*Ind.*) : six limbs (*shadanga*)

of painting as described in a ninth century handbook, traditionally believed to be the fundamentals of art : (1) *Rupa-bheda*, distinction of form ; (2) *Pramānam*, rules of proportion ; (3) *Bhāva*, emotion or mood to be depicted ; (4) *Sadrishya*, resemblance ; (5) *Lavana-yojanam*, 'salt or grace mixing' so that the painting may look beautiful ; and (6) *Varnikā bhanga*, proper distribution of colours. **paired-associate learning** : learning in which the subject is to respond with one word or syllable when presented with another word or syllable.

paired-comparisons : a method of measurement in which things are taken two at a time and judgment made with respect to a given quality or trait. This is generally used in the study of emotional or aesthetic values.

palace school : a school held in the palace of a king for the education of princes, princesses and others connected with the royal family.

palindrome : word or sentence which reads the same backwards as forwards or which is meaningful when read either way; e.g., madam, Able was I ere I saw Elba, draw, was, no.

pamphlet : Unesco has defined it (with reference to statistical compilations) as a non-periodical printed publication of at least 5 but not more than 48 pages, exclusive of the cover page, published in a country and made available to the public.

Panchatantra (*Ind.*) : [lit., five books] a famous work of Sanskrit stories whose authorship is not known. The stories are meant to provide instructions to the sons of a certain king by a certain priest named Vishnusharma. In these fables one tale is cleverly woven within another. The foibles and vices of men are exposed

through the characters of animals and the science of statecraft and the knowledge of human nature are brought out.

panel discussion : a small group discussion of a topic or issue without any prepared speeches and either with or without active participation of the audience. Discussions take place under the leadership of a chairman.

Panini (Ind.) : a great Sanskrit grammarian born near Gandhāra, probably in the 4th century B.C. *Aṣṭādhyāyī* (the eight chapters) is his great work codifying the linguistic standard of classical Sanskrit. It consists of 4,000 *śūtras* or aphorisms, each of 2 or 3 words only, covering all the grammatical rules which by themselves are difficult to understand without complete commentary. Pāṇini's *Aṣṭādhyāyī* the earliest scientific grammar in the world, not only systematized the language, but also influenced all subsequent Sanskrit writing.

pansophism : the view point that education should not be confined to a small number of subjects, but its scope should be wider enough to cover as many variety of subjects as possible.

pantophobia : a morbid anxiety concerning what may happen.

parallel-course plan : a plan of dividing the pupils of a school into fast group and slow group of learners facilitating each group to cover the same course at its own rate of speed depending upon its abilities.

parallel curriculum plan : a school curriculum plan in which the school curriculum is graded to the abilities of the students i.e., the fast group covers the elementary school curriculum in 6 years and the slow group covers in 8 years. Such a plan was devised in Cambridge, Massachusetts and therefore also known as Cambridge Plan.

parallel forms of test : test forms which are so similar that they can be interchanged; test forms that give almost the same mean and variability of scores, and whose items are similar with reference to type, difficulty, correlations and coverage. They are also known as equivalent forms.

parallelism, social and educational : harmony existing between the content of the current social ideals and that which is taught in the school.

paraphrase : an exercise in the teaching of language whereby a student is asked to reproduce in his own words the meaning of a passage in prose or poetry.

para vidya (Ind.) : the supreme knowledge; the knowledge through which the Ultimate Reality is known. It is the *pūra vidyā* which

is the real subject matter of the *Upanishads*.

parental education : education for the parents with the aim to help them to understand their children better and to deal with them in a more effective manner. Sometimes the parents have their own emotional difficulties that prevent them to establish good relationship with their children. Lack of knowledge about child development, child psychology, educational goals, work being done in schools, and the work undertaken by different social agencies concerning child welfare does not allow the parents to see their effective role in a broader perspective. The rapid changes in the social environment have highlighted the need for parental education through governmental agencies, departments of education and public health, parent teacher organizations, consultation centres and other social agencies.

parental instinct : one of the fourteen instincts stated by McDougall who describes it as 'nature's brightest and most beautiful invention'. The instinct is manifested in the protection and cherishing of the young. In a broader sense, the cry, the sight or the thought of anyone in distress may easily move the heart and arouse this instinct whose feeling tone is tenderness.

parent-teacher association : a voluntary association of teachers and parents of pupils of a school for the general purpose of promoting good relations between the school and the parents in the interest of the pupils. It helps the parents to understand the aims of the school and enlists their co-operation in the development of extra-curricular activities. The association has the potentiality of improving the effectiveness of the school as a social and educational agency.

parishad (Ind.) : the term used in *Upanishads* for the assemblage of advisers in questions of philosophy. In the period of *Śhūtra* literature, it denotes an academy of learned and religious men, usually 10 in number to give instruction regarding disputed or doubtful points. The members of a *parishad* were experts whose authoritative interpretations and decisions on the doubtful points in the sacred texts were binding on the community as the sacred texts themselves.

parish school : a school conducted by a local priest in a parish church during the Middle ages in Europe which taught singing, pronunciation and sometimes the reading of Latin to the choir boys.

parity of esteem : the phrase first used in the recommendations of Hadow and Narwood

reports to imply that all types of secondary schools should be regarded by the public as of equal status and no one should have a specially-favoured treatment on the grounds of belonging to a special type.

parochial school: the term is used in a strict sense for a school supported by a parish for the children of the parishioners, but in a wider sense it means a school run by some church or religious body.

participant observation: observation of a group by the observer through participating in the activities of the group. For making a detailed record of the content and pattern of group interaction, the observer studies the structure and functioning of a group in its natural setting by living and participating actively in the various activities of the group.

participatory leadership: a type of leadership in which the leader plays an active role of a consultant and adviser, thus permitting his colleagues a considerable amount of independence in making final decisions.

part method: a teaching procedure in which a unit of lesson is learned in parts; contrasted with the whole method or learning by wholes.

passive technique: a method adopted in counselling interview in which counsellor only listens, thus allowing the counsellee to be active in working out his own solution.

passive vocabulary: see 'vocabulary, passive'.

pass-matriculation examination (Can.): the lower matriculation examination at the end of grade XII of a 13-year school system, or of grade XI of a 12-year school system, which qualifies a student to enter university.

Patanjali: the name of a grammarian and also of the founder of the *yoga* philosophy. Patanjali, the grammarian, wrote *Mahābhāṣya*, a great commentary on the grammar of Pāṇini. The other Patanjali, said to be the founder of the *yoga* philosophy compiled the *yoga-sutra*, the first systematic work on *yoga*.

Path, the Noble Eightfold [Aṣṭāṅga-mārg] (Ind.): see 'Aṣṭāṅga-mārg'.

pathshala (Ind.): [lit. place of learning] a Hindu school for learning in north and western India. These schools imparted instruction through the medium of Sanskrit. The scholars were required to spend not less than 12 years for becoming Pandits. Instruction was usually free as the teachers did not accept fees. The institutions subsisted on donations, gifts and occasional endowments of land. Its counterpart in Bengal was known as *tal*.

Patna University, Patna (Ind.): a teaching and residential university founded in 1917 in

Bihar. It has a good department of history. The university has created a revolving fund for the professional benefit of its teachers to grant them interest-free loans for study abroad.

patterning trait: pattern of the scores of a person on the specific indicators of a trait. Two persons having the same total trait score may have two quite different patterns of scores.

Pauranic period, education during the (Ind.): (c. 500 A.D. to 1200 A.D.) The rise of the corporate institutions for higher studies is most noteworthy. Buddhist monasteries developed into universities, some of international fame like Nālandā and Vikramashilā. Hindu temple colleges were started in South India at about 8th century. There was a new educational atmosphere in these corporate institutions with scores of teachers and hundreds of students living together and studying diverse subjects, the courses being fixed by governing bodies. It helped the cause of higher education and produced many great scholars and authors. Specialization, however, began to be carried too far. A reverence for the past became so deep that new learning was accepted or rejected on the basis of canonical literature or orthodox theories. The spirit of enquiry, creative thinking and a free open mind were now at a discount. The revival of classical Sanskrit gave an intellectual unity and scholars expressed their thought in Sanskrit only. Sanskrit, however, gradually ceased to be intelligible to the masses owing to the emergence of different provincial vernaculars at about 1000 A.D.

payments by results: a system of giving grants-in-aid to schools. The system was introduced in England by Robert Lowe, vice-president of the Education Department in 1862 with a view to securing better results. The government grant was calculated on the basis of the attendance of pupils and the results of an examination conducted by an inspector. The system was discontinued after 1897. A similar system was followed in some parts of India but discontinued in 1906. The system though helped to improve results ushered in a commercial outlook in education. The teaching methods disregarding sound educational principles and practices were keyed only to produce good examination results.

pedagogy: the theory, practice (and sometimes the art) of teaching. It also implies a systematic study of educational goals, and principles and methods of teaching; but in this

sense the term 'education' is mostly used.

pedantry: too much of bookishness or ostentations flourish of knowledge and learning. In a teacher it denotes a rigid attitude in instructional procedures emphasising formalism even at the cost of the genuine need and interest of the students.

pedology: the study of the whole child, his physical and mental growth, and his potentialities, interests and needs, with due emphasis on the learning aspect.

peer: an equal in a given respect; an associate at the same level of age, ability, etc., as class mates are peers among themselves.

Pelham Committee (Brit.): the committee appointed in 1945 in England under the chairmanship of Sir Henry Pelham for drawing up salary scales for lecturers in Teacher Training Colleges.

pentathlon: the five athletic contests, viz., running, leaping, wrestling, throwing the discus and casting the javelin, of the Greek Olympics in each of which all competitors took part. The Spartan and Athenian physical curriculum was based on these five exercises.

percentage grant: a grant whose amount is a percentage of the total expenditure incurred on a particular educational service. The percentage of grant may be different for different items of school expenditure.

percentile: a point on a scale of 100 or a score or value that has a definite position in a distribution on the basis of percentages. Thus 30th percentile (P_{30}) is that score below which lie 30 percent measures or above which lie 70 percent (100—30) measures.

percentile-grade norms: tables of percentile ranks on test scores of pupils studying in different classes or grades; used in determining the appropriate class groups in primary or elementary schools.

percentile rank: the position assigned to a score in an array for which the scores are divided into one hundred equal divisions in descending order.

perception: a process of becoming aware of something as a result of sensory stimulation. Perception passes into apperception when that something is recognised or identified in any way.

perception, kinesthetic: recognition of a word through writing or tracing the word, in which motor co-ordination and sense of touch play an important role.

perception, selective: a mode of perception in which the purpose or experience of the

perceiver selects only those stimuli to which he responds.

perception, word: perceiving words as wholes as contrasted with letter perception or perception of word groups.

perceptual constancy: a general tendency of objects to be perceived in the same way despite wide variations in the manner of viewing them.

perceptual learning: see 'learning, perceptual'.

perceptual-motor learning: see 'learning, perceptual-motor'.

perceptual span, absolute: the maximum number of words or letters that one can perceive during a very brief exposure of tachistoscope.

perceptual span, relative: the maximum number of words or letters that one can perceive during each pause or fixation while reading. It may be less than half the absolute perceptual span.

Percy Report (Brit.): a report (1945) of the Special Committee on Higher Technological Education appointed by the Minister of Education under the chairmanship of Lord Eustace Percy to deal with the problem of higher technological education. It noted the serious shortcomings in the training of technologists and recommended the establishment of a National Council of Technology with regional councils to co-ordinate technological education in different parts of the country.

performance: actual accomplishment or achievement as distinguished from ability or aptitude.

performance scale: see 'Grace Arthur's point performance scale'.

performance test: a test to which the pupil typically responds by motor or manual rather than by verbal behaviour; in a broader sense, any test to measure actual accomplishment.

period: time allotted to an individual lesson which may last from half an hour to an hour. For teaching science practicals or other subjects needing longer time, a double period is sometimes allowed. The phrase 'free period' is used to mean a period when a teacher or a pupil has no definite assignments or duties.

period, conversation: a period allowing opportunity for conversation when young children freely exchange their ideas and improve their language habits.

period, formative: see 'formative period'.

period, library: time allotted in the weekly time table for the use of library when children generally engage themselves in free

reading, browse among the books, get books issued and learn the techniques of using a library.

peripatetic school: the school conducted by Aristotle where Aristotle used to teach while pacing back and forth in the walks of the Lyceum while his students and disciples followed the master as he lectured. The word *peripatein* in Greek means 'to walk about'.

permanent salary schedule: see 'salary schedule, permanent'.

Persian education: Persian education aimed at strength since the Persians wished to produce a nation of soldiers physically fit and brave, with all the virtues of a good soldier. The predominant aims of Persian education were in terms of 'military' rather than in terms of cultural or scholastic. Military training and physical training were the all-important types of education.

personal guidance: a phase of guidance aiming at asserting the individual to solve his personal problems relating to his habits and attitudes.

personalism: personal idealism; *i.e.*, the belief that personality is reality and the very basis of all values and realities to which a person holds allegiance.

personality: several connotations of the term are in use and G. Allport lists no less than 50 meanings. It may mean a collection of traits of a person that distinguishes him from another, or psychologically, a dynamic organization within a person that determines his adjustment to his environment, or the emotional or temperamental characteristics of a person, or the social aspect of a person's nature developed in social interaction. In terms of behaviour it may be defined as the characteristic pattern of behaviour through which the individual seeks to adjust himself to his social environment.

personalistic psychology: see 'psychology personalistic'.

personality, dual: a mental disorder in which a person owns two independent personalities and thus leads two independent lives alternately, but neither personality is fully conscious of the experiences of the other.

personality, ethnocentric: see 'ethnocentric personality'.

personality, multiple: see 'multiple personality'.

personality, schizoid: a type of personality characterized by introversion and seclusiveness.

personality test: see 'test, personality'.

personnel: persons directly connected with an

institution, whether employees or students.

personnel, non-teaching: employees of an educational institution who have duties other than teaching.

personnel, pupil: all children enrolled in an educational institution.

personnel, teaching: employees of an educational institution engaged in teaching.

personnel record: It may either mean a record of a student systematically kept, or a set of records of all the persons employed in an institution with reference to their service, experience, remuneration, etc.

personnel work: activities connected with the welfare of employees and students of an institution.

perversion: deviation from normal behaviour, more particularly in sexual practices.

Pestalozzianism: educational theories and practices as developed by the Swiss educator, Johann Heinrich Pestalozzi (1746-1827) and his followers. It is believed that all human development emerges from possibilities native to the human being, and it is the duty of an educator to assist nature's march of development. This doctrine leads to the following six educational principles: (1) education should be essentially religious, (2) education should develop the whole child, (3) education should stimulate and guide self activity, (4) education should be based on intuition and exercise, (5) education should observe appropriate graduation in the child's development and, (6) education should foster the growth of knowledge through the development of ideas.

petty school: a school preparatory to grammar school in England. The term 'petty school' came into use during the 17th century, though words like 'petties', 'pettetes' were used for primarily young children in the 16th century. Its origin may not be confused with the name of Sir William Petty (1623-1687), a political economist who also championed the cause of education and recognized that the business of education should not be committed to the worst and unworthiest of men, but it should be seriously practised by the best and ablest persons.

phallic stage: a stage in the development of the child, usually between the third to the seventh years during which, according to psychoanalytic theory he becomes interested in his sexual organs and forms a romantic attachment (Oedipus Complex) to the parent of the opposite sex.

phantasy: day-dream, mental make-believe where the images and trains of imagery are

directed and controlled by the whims or pleasure of the moment. (see 'day dreaming'.)

philanthropic education : a term used for the various charitable efforts made in England during the 18th and early 19th centuries by starting Sunday schools, charity schools, etc., for providing rudimentary education to the children of the poor.

philanthropinists : those who followed the educational doctrines of Johann Bernhard Basedow (1723—1790) who first established a school named Philanthropinum at Dessau, Germany, where the educational theories of Rousseau were translated into practice.

philanthropy, educational : giving of money donations, gifts, grants or building up endowments by the public in a private capacity for the direct support of educational institutions. Private support of education dates from ancient times. Owing to the compulsory free education and the larger provision of educational facilities of various nature, the cost of education has very much increased with the result that the responsibility for financing education is falling increasingly on government funds. A total centralization of all financial responsibility would, however, not be desirable because it deprives the public and the local communities of all initiative in the field of education.

philosophy of education : see 'education, philosophy of'.

phobia : an intense, unreasonable fear, usually acquired through conditioning to an unpleasant object or situation.

phonetic alphabet : a system in which each symbol stands for only one sound and each sound is represented by one independent symbol. International phonetic alphabet of the International Phonetic Association is a special arrangement of symbols which can be used for the exact rendition of sounds in almost any language ; for example *i* : stands for the sound as in green (*grin*), *i* as in sit (*sit*), *e* as in desk (*desk*), *ae* as in man (*maen*), etc.

phonetics : a branch of science which investigates vocal sounds.

phonetic script : a system of indicating pronunciation in which each letter or symbol stands for each different sound.

phonic method : a method of teaching reading in which each word is broken up into basic speech sounds for facilitating reading.

phrase method : a method of teaching reading by phrases or groups of words.

phylogenetic : evolution of the species from the single cell to man or race history from the simplest to the most complex.

physical education : activities which produce the physical welfare of pupils. Physical education includes formal exercises, gymnastics, athletics, swimming and organized games. It enables the children to maintain normal health and develop social and personal qualities like sportsmanship, co-operation, leadership, perseverance, courage and skill. A good gymnasium and extensive playground are necessary for the promotion of physical education by providing facilities to each and every pupil. The term is abbreviated as P.E. The narrower term 'physical training (P.T.)' is rarely in use. Similarly, the physical training instructor is now called a physical education teacher.

Physical Education, Lakshmibai College of (Ind.) : see 'Lakshmibai College of Physical Education'.

Physical Efficiency Drive, National (Ind.) : see 'National Physical Efficiency Drive'.

physical-efficiency test : see 'test, physical-efficiency'.

physical examination : see 'examination, physical'.

physical plant : the physical property of a school or college including building, land, playing fields, library, gymnasium, equipment, furniture, etc.

Physical Science Study Committee : [usually abbreviated to PSSC] a group of university and secondary school physics teachers working to develop an improved physics course for beginning students. The project was started in 1956 with a grant from the National Science Foundation. The project emerged from a committee of leaders in physics and in education called by Professor J.R. Zacharias of the Department of Physics, Massachusetts Institute of Technology. The PSSC physics course is the work of several hundred people, mostly school and college physics teachers over a period of 4 years. Materials were tested and revised. The concepts of the students grow through exploration in the laboratory, analysis in the text and study of films. PSSC has helped to produce books, standardized tests, films, inexpensive apparatus, a laboratory guide and a teacher's resource book.

physiological limit : the point beyond which there can be no gain in performance. The limited capacity of the eyes, fingers, legs or any other part of the body sets limit to efficiency. For instance, the rate at which the eyes can move sets a limit on the speed of reading and the rate at which the fingers can move sets a limit on the speed of typewriting.

pickup method : a method of learning, where

the learner 'picks up' knowledge and skill mostly by watching others on the job.

pie diagram : a graph shown by a circle, whose total enclosed area represents 100 percent of that which is to be graphically represented while the sectors represent parts of the total. It is also known as 'circle diagram', 'pie graph', 'pie chart' and 'sector diagram'.

Pintner-Cunnigham primary test : a non-language group test devised to test general mental ability, entirely composed of pictures.

pituitary gland : a small ductless gland in the brain whose secretions influence growth and the activity of other ductless glands.

plan, Academi (U.S.A.) : see 'Academi plan'.

plan, Batavia : see 'Batavia plan'.

plan, Cambridge (U.S.A.) : see 'Cambridge plan'.

plan, contract : see 'contract plan'.

plan, Dalton : see 'Dalton plan'.

plan, Detroit : see 'Detroit plan'.

plan, diagonal seating : see 'diagonal seating plan'.

plan, fusion : see 'fusion plan'.

plan, Gary : see 'Gary plan'.

plan, institutional : see 'institutional plan'.

plan, Morrison (U.S.A.) : see 'Morrison plan'.

plan, Mort (U.S.A.) : see 'Mort plan'.

plan, Sargent (Ind.) : see 'Sargent plan'.

plan, six-four-four (U.S.A.) : see 'six-four-four plan'.

plan, six-four-two (U.S.A.) : see 'six-four-two plan'.

plan, six-six (U.S.A.) : see 'six-six plan'.

plan, six-three-three (U.S.A.) : see 'six-three-three plan'.

plan, tutorial : see 'tutorial plan'.

plan, Winnetka (U.S.A.) : see 'Winnetka plan'.

planning, cost-benefit approach to educational : see 'cost-benefit approach to educational planning'.

planning in India (1938—44), educational : see 'educational planning in India (1938—44)'.

planning, institutional : see 'institutional planning'.

planning instruction, unit technique of : see 'unit technique of planning instruction'.

Planning, International Institute for Educational : see 'International Institute for Educational Planning'.

planning, manpower-requirements approach to educational : see 'manpower-requirements approach to educational planning'.

planning, social-demand approach to educational : see 'social-demand approach to educational planning'.

Plan on education, First Five Year (Ind.) : (1951-52

to 1955-56). The main emphasis was on reorientation of the educational system and integration of its different stages ; expansion in various fields, especially in the Basic and Social education ; improvements of the existing secondary and university education and the devising of a system of higher education suited to the needs of the rural areas ; expansion of facilities for women's education ; training of teachers, especially women teachers and teachers for Basic schools, improvement in the pay scales and service conditions of teachers ; and assistance to backward States and backward sections of the population. The total outlay on education was Rs. 153 crores distributed as under : elementary education Rs. 85 crores ; secondary education Rs. 20 crores ; University Education Rs. 14 crores ; social education, physical education, cultural programmes etc. Rs. 14 crores ; technical education Rs. 20 crores. The number of students in classes I to V increased from 191.5 lakhs (1950-51) to 251.7 lakhs (1955-56), in classes VI to VIII from 31.2 lakhs to 42.9 lakhs, in classes IX to XI from 12.6 lakhs to 19.8 lakhs and in University education from 3.1 lakhs to 5.5 lakhs. The proportion to children attending schools in the age group 6-11 increased from 43.1% to 50%, in the age group 11-14 from 12.9% to 15.9%, and in the age group 14-17 from 5.6% to 7.9%. In technical education, the admission capacity for diplomas and degrees increased from 5,900 to 10,480 and from 4,120 to 5,890 respectively. The number of school teachers increased from 7.50 lakhs (including 57% trained) in 1950-51 to 10.29 lakhs (including 61% trained) in 1955-56.

Plan on education, Second Five Year (Ind.) : (1956-57 to 1960-61). The main emphasis was on : Basic education ; expansion of elementary education, diversification of secondary education, improvement of standards of college and university education, extension of facilities for technical and vocational education and the implementation of social education and cultural development programmes. The total outlay on education was Rs. 256 crores distributed as under : elementary education Rs. 87 crores ; secondary education Rs. 48 crores ; university education Rs. 45 crores ; social education, physical education, cultural programmes etc., Rs. 28 crores ; technical education Rs. 48 crores. The number of students in classes I to V increased from 251.7 lakhs (1955-56) to 349.9 lakhs (1960-61), in classes VI to VIII from 42.9 lakhs to 67.1 lakhs, in classes IX to XI from 19.8 lakhs to 30.2 lakhs, and in university education from 5.5 lakhs to 7.4 lakhs. The proportion

of children attending schools in the age group 6-11 increased from 50% to 62.8%, in the age group 11-14 from 15.9% to 22.5%, and in the age group 14-17 from 7.9% to 11.1%. In technical education, the admission capacity for diplomas and degrees increased from 10,480 to 25,000 and from 5,890 to 13,820 respectively. The number of school teachers increased from 10.29 lakhs (including 61% trained) in 1955-56 to 13.83 lakhs (including 65% trained) in 1960-61.

Plan on education, Third Five Year (Ind.): (1961-62 to 1965-66). The main emphasis was on : Provision of facilities for the education of all children in the age-group 6-11 ; extension and improvement in teaching of science in secondary and university stages ; development of vocational and technical education at all levels ; expansion and improvement of facilities for the training of teachers for each stage of education ; increase in scholarships, freeships and other assistance ; special concentration on the education of girls ; orientation of all elementary schools to the Basic pattern ; re-organization of university education ; development of both skill and knowledge, a creative outlook, a feeling of national unity and an understanding of common interests and obligations, at all stages of education. The total outlay on education was Rs. 560 crores distributed as under : elementary education Rs. 209 crores ; secondary education Rs. 88 crores ; university education Rs. 82 crores ; social education, physical education, cultural education, etc., Rs. 39 crores ; technical education Rs. 142 crores. The number of students in classes I to V increased from 349.9 lakhs (1960-61) to 514.5 lakhs (1965-66), in classes VI to VIII from 67.1 lakhs to 105.4 lakhs, in classes IX to XI from 30.2 lakhs to 55.1 lakhs ; and in university education from 7.4 lakhs to 12.3 lakhs. The proportion of children attending schools in the age-group 6-11 increased from 62.8% to 78.5%, in the age-group 11-14 from 22.5% to 30.9%, and in the age-group 14-17 from 11.1% to 18%. In technical education the admission capacity for diplomas and degrees increased from 25,000 to 49,900 and from 13,820 to 24,700 respectively. The number of school teachers increased from 13.83 lakhs (including 65% trained) in 1960-61 to 20.47 lakhs (including 74% trained) in 1967-68.

Plans on education, Five Year (Ind.): overall plans for education, which form a part of the Five-Year National General Plans, each drawn up for a period of 5 years by various agencies at district, as well as State level, and finally

co-ordinated by the Ministry of Education before it is modified and approved by the Planning Commission. The Planning Commission was founded in 1950 followed by the First, Second and Third Plans covering the periods 1951-56, 1956-61 and 1961-66 respectively. The Fourth Five Year Plan for the period 1969-74 succeeds the three annual plans for 1966-67, 1967-68, and 1968-69. It is gradually being recognised that education is not just a consumption or welfare activity something that can be postponed in preference to investment on irrigation, power, or industries ; it plays an important role in the economic development of a country.

Financial provision for Education and Training in the Plans

(Rs. in crores)

	1st Plan 1951-56	2nd Plan 1956-61	3rd Plan 1961-66
1. General education (including Cultural Programmes)	133	208	418
2. Technical education	20	48	142
3. Vocational training	—	13	49
4. Medical education	22	36	57
5. Agricultural education	5	11	20
6. Other Ministries	22	42	79
(i) Total Education and Training	202	358	765
(ii) Total Plan Provision	1960	4600	7500
(iii) Percentage on education	10.3	7.8	10.2

plant, physical : see 'physical plant'.

plateau : that part of the learning or growth curve that is flat and thus represents the period of no apparent progress or development. The plateau is followed by further improvement.

platykurtic : a term describing a frequency curve which is less peaked or more flat than the normal probability curve.

play, free : play characterized by spontaneity and freedom as a result of child's natural urge for activity.

play, manipulative : see 'manipulative play'.

play, recapitulatory theory of : see 'recapitulatory theory of play'.

play, supervised : any play activity under the guidance or supervision of a supervisor to ensure fair participation of all the players.

play, theories of : various theories and views put forward to explain the tendency to play. Surplus Energy Theory explains that extra energy when available is expended in play. According to Recreative Theory play is the antidote of fatigue and therefore helps to

recuperate the energy spent. Anticipatory Theory considers play as instrumental to the preparation for the serious business of adult life. Recapitulation Theory thinks of play as the repetition of experiences through which the race has passed. Cathartic Theory holds that play allows an outlet for pent-up feelings and helps the refinement and redirection of instinctive energy towards ethical goals.

play and work : the distinction between the two depends not on the type of activity engaged in but on the mental attitude towards the activity. Play is that activity which is undertaken joyfully, spontaneously, without any external compulsion and with full scope of freedom and self expression. Work has a sense of compulsion and its scope is limited by the aim for undertaking it. Nunn makes the distinction clear when he says, "An agent thinks of his activity as play if he can take it up or play it down, at choice or even at will, the condition of its exercise he thinks of it as work as if it is imposed on him by unavoidable necessity or if he is held to do it by the sense of duty or vocation." When the play-element is introduced in the methods of teaching and school work, the learning process becomes easier.

playground : the area surrounding a school or adjoining to it used for out-door physical education. The term 'playing-field' is generally used for a grass area around the school or at some distance from it where games like hockey, football, and cricket are played.

play therapy : one of the projective techniques for the study of the individual and his treatment accordingly. Play therapy enables the child to externalize his unconscious desires or conflicts. By providing an environment of free play, children feel free to express themselves fully in their own way. The three basic attitudes in play therapy are faith, acceptance and respect and a play therapist conveys these attitudes to the child. Some of the means to help children gain emotional insights are listening, conveying understanding and providing opportunities for emotional expression.

play-way in education : the idea expounded and developed by Caldwell Cook in the late nineteenth century. It assumed that children learn best when they are motivated by interest and the spirit of play. Thus, learning is made effective by the play-way method, that is, by the introduction of the characteristics of play in the school work and methods of teaching. Kindergarten schools, Montessori schools, Dalton plan, Project method and Heuristic

method represent the principle of play-way in education.

plosive : any of the six consonants—p, b, k, g, t, d—the sound of which is produced by a complete stoppage of breath stream followed by sudden release.

Plowden Report (Brit.) : a report (1967) of the Central Advisory Council for Education set up in 1963 under the chairmanship of Lady Plowden to 'consider primary education in all its aspects, and the transition to secondary education'. The 197 recommendations of the report entitled 'Children and their Primary Schools' include : there should be greater and more effectual control between home and school; ratio of teachers to children should be improved in priority areas ; community schools should be developed ; nursery education should be greatly expanded ; there should be a 3-year course in a first school followed by 4-year course in a middle school ; the most satisfactory size for the first school should be 240 children and for the middle school 300 to 450 ; further inquiry should be made about religious faith that can be presented to young children ; corporal punishment should be forbidden.

point : a unit for measuring the size of a type, equal to 1/72 inch ; an 18-point type has capital letters 1/4 inch high and a 12-point type has capital letters 1/6 inch high.

polar forces : social forces acting in opposite directions like freedom and authority, individual rights and social obligations.

Policy on Education (1968), National (Ind.) : see 'National Policy on Education (1968)'.

Poona University (Ind.) : a teaching and affiliating university founded in 1948. Some of its constituent recognized institutions like Bhandarkar Orient Research Institute, and the Gokhale Institute of Politics and Economics located at Poona are well-known in the country.

poor laws : various laws enacted in England and America to provide for the education of the poor prior to the making of education free for all the children.

positive transfer : a change for the better or rapid learning in the performance of a task as a result of performing some other task previously. It is due to a similarity of the stimuli and responses required in the two situations or tasks.

positivistic school : a school of thought founded by Auguste Comte (1798-1857) who propounded the law of three historic stages in philosophy viz., theological, metaphysical and positive.

postures : of the two postures—standing and sitting—the latter requires special attention as

pupils spend long hours sitting in the classroom. Incorrect sitting postures result in the curvature in the spine and other deformities, besides causing discomfort and fatigue. Bending too low while writing or reading, reclining on one side or getting uncomfortable support from the back of the seat may produce bad postures. Proper size and shape of desks and seats and timely check from the teachers will help to develop good postures. It is also necessary to correct the walking gait and standing posture at an early age before it hardens into a habit. It is of personal significance the way in which a person carries himself.

posture scale : see 'scale, posture'.

Post-War Educational Development in India, Scheme of : see 'Sargent Report'.

potential vocabulary : see 'vocabulary, potential'.

power test : a test that measures the difficulty of the task the subject is able to perform.

power want : the desire to control other person's behaviour, to obtain their obedience, to compel their actions, often fused with the prestige want.

practical level : the level of learning and achievement that results from typical or average effort, usually considerably below the optimum level.

practice, negative : see 'negative practice'.

practice effect : the influence of the previous experience with a test on a later administration of the same or similar test.

practice exercise : a few sample items preceding a test designed to familiarise the pupils with the nature of the test.

practice school : a school where the pupil-teachers get an opportunity to practice and observe teaching under the guidance of a supervisor.

pragmatism : a philosophical doctrine expounded by Charles Peirce and William James and continued by John Dewey, which holds that the ultimate test of what is right or wrong is determined by its practical consequences. Through the influence of Dewey and others pragmatism has greatly influenced educational thought and practice. It has supported the activity programme of progressive education, stressed the employment of interest in learning and highlighted democratic implications. Freedom and creativity in education will find ample support in pragmatism.

Prajanam brahman (Ind.) : meaning 'Brahma is knowledge', a great saying from the *Bṛihadāraṇyaka Upanishad*, stressing the identity of all things in *Brahma*.

Prakrit (Ind.) : the term is used for the whole

family of vernacular forms of speech that developed as a result of the association of Aryans with the non-Aryans. It was the common peoples' language, a 'natural' language, as distinguished from the 'artificial' language, the Sanskrit. Pāli is the earliest of the literary *Prākṛit*. Other literary forms of *Prākṛit* are *Gāṭhā*, *Shauraseni*, *Māgadhi*, *Ardha-māgadhi*, and *Mahārāṣṭri*.

pranayama (Ind.) : control or regulation of the breath ; breathing exercises. The outflow, inflow and stoppage of breath are the three items to be regulated by time, place and number. The number refers to the proportion of time allowed for the three items of breathing, sometimes it may be one unit of time for inbreathing, four units for holding the breath inside, and two units for breathing out. Patanjali, however, does not mention any such ratio but leaves the student to discover his own way of breathing with comfort.

Prashna Upanishad (Ind.) : one of the *Atharva-Vedic Upanishads*. It deals with six questions addressed by six students to the sage Pippalāda.

pratyahara (Ind.) : [lit., withholding of senses] a meditative technique of withdrawing the senses from outward attractions and distractions. It is the first of the three stages of *Yoga* before *Samādhi*. Among the commonest methods belong the physical closing of sense organs, the *trūṭaka* techniques of focusing the eyes on a certain point, or the techniques of *āsana*, *mantra*, and *prāṇāyāṁ*. The highest form of *pratyūhāra* consists in the power self enlightenment or control when the senses cease from lusting for earthly satisfactions.

praxiology : a term proposed to be used for behaviourism or for the science of conduct.

prayer : Daily prayer in the morning assembly is a regular feature in some schools. Selected prayer is sung in chorus with all its seriousness, sometimes to the tune of musical instruments. It creates an atmosphere quite conducive to serious work which begins after the prayer.

pre-adolescent age : also called boyhood or girlhood, covering the age group 11 to 14 which is a period of stability and consolidation in the case of boys after a rapid growth in the previous stage. Girls are found growing more rapidly in height and weight.

precocious child : a child who is exceptionally matured beyond the normal mental and physical growth characteristic of his age.

precocity : an early and rapid maturation, or mental and physical growth.

predelinquent : a child who is beginning to

show early signs of antisocial behaviour and lack of respect for authority owing to inherent characteristics, poor social environment, unsatisfied and rejected feelings, etc. The use of the term is objected as such a labelling dooms the children to a life of delinquency.

prediction, educational: prediction of future educational achievements or scholastic success. Intelligence or scholastic aptitude tests to a large extent determine such predictions.

prediction of success: a forecast of future success of the students in academic and vocational fields. A sound guidance programme should help the students in their adjustment to personal and social situations on the basis of such predictions. The measurement of a trait, that is measurable, helps to predict the degree of another trait which is involved in a future activity but is not readily measurable. The closer the relationship between measures of the two traits the more accurate will be the prediction. The best way of predicting the scholastic achievement of a student is his past academic record. As a general rule the future is predicted by the past.

prefect system: an important characteristic of the English public school. It is generally ascribed by many to Dr. Arnold of Rugby, though the earliest evidence of this system is in the statutes of 1270 of the House of the Scholars of Merton, since called Merton College, Oxford, "And there shall be in each chamber one fellow more advanced than the rest in age and sense, who shall have charge of the others in matter before mentioned (*i.e.*, attendance at Chapel, behaviour at halls, in meals, quiet and study in chambers, and talking Latin), through whom the Warden and others put over them in such charge, and the whole society if need be, may clearly ascertain the progress of each of them in conduct and learning."

preference: a liking for or predisposition towards some person, activity or practice.

prejudice: literally a prejudgment more generally an emotionally charged attitude for or against an object, person or groups of persons held without regard for or in spite of evidence. Such an attitude is not easily alterable even by the presentation of contrary evidence.

preparatory school: a school which is run solely for the purpose of preparing students for entrance to another educational institution.

preparental education: education given to prospective parents through subjects like

child psychology, health and nutrition so that their parental duties are efficiently performed.

Pre-Primary Education in Mysore State, Committee on (*Ind.*): see 'Committee on Pre-Primary Education in Mysore State'.

preprimer: a reading book for the beginner consisting of a very limited number of words and sentences printed in large type, usually 18 point or 24 point.

preschool education: education related to the training and development of good manners and proper behaviour before the beginning of formal schooling.

preschool period: the term usually refers to a period in a child's life between 2 and 5 years before entering the primary school.

prestige want: the desire to be highly regarded by one's associates. It motivates the individual to strive for higher and higher status.

pretest: test designed to measure the subject's knowledge before the beginning of a new study, topic or unit of work.

preventive teaching: see 'teaching, preventive'.

primary education: the first stage in the system of public education devoted primarily to develop social attitudes and fundamental skills in the mother tongue, numbers and hand work. (see 'compulsory education'.)

primary education (1854-1902) (*Ind.*): the progress in primary education was very slow during this period. Usually three causes are ascribed to it *i.e.* (i) Non-introduction of compulsory primary education, (ii) Transfer of primary education to the control of local bodies, and (iii) Neglect of the indigenous schools. However, the period was marked by qualitative changes in certain aspects of primary education which were as (i) Construction of school buildings, (ii) Admission of girls and Harijan pupils, (iii) Use of printed books, (iv) Improved curriculum, (v) Adoption of new methods of teaching, and (vi) Improvement in the training and qualification of teachers.

primary education (1902-1921) (*Ind.*): the policy of larger grants to primary education initiated by Lord Curzon brought about a considerable expansion of primary education between 1905 and 1912. Gaekwar of Baroda introduced compulsory education throughout his State in 1906. This led the Indian nationalist opinion to press Government for the introduction of compulsory education. Shri Gopal Krishan Gokhale made heroic efforts between 1910 and 1913 to make Government accept the principle of compulsory primary education. Gokhale's bill introduced

in March 1911 in the Imperial Legislative Council came up for discussion on the 17th of March 1912 but was rejected by 38 votes against 13. Nevertheless this led to a great activity of Government in the field of primary education during 1912-17. The Government Resolution on Educational Policy dated 21st February, 1913, stated that local governments should extend the application of the principle of free elementary education, amongst the poorer and more backward sections of the population. The Bombay Legislative Council was the first to pass the Bombay Primary Education Act, 1918, which was followed by other provinces.

primary education (1921-1937) (Ind.): Compulsory Primary Education Acts were passed in most of the provinces of British India. These Acts transferred large powers of administration and control over primary education to local authorities and the Provincial Governments liberalised the constitution of local self government institutions and gave them additional powers of taxation. The expansion of primary education was very rapid in the quinquennium 1922-27. The number of primary schools increased from 1,55,017 with 61,09,752 students to 1,84,829 schools with 80,17,923 students. The Hartog Committee, 1929 recommended a policy of consolidation in preference to one of diffusion. This policy accompanied by the financial stringency caused by the world depression was responsible for a comparatively little progress in the period between 1927 and 1937. No serious efforts were made to introduce compulsion. The period witnessed neither an appreciable improvement in quality nor expansion in the field of primary education.

primary education (1937-1947) (Ind.): with the assumption of offices by the Congress Ministries in seven provinces, the problem of extending compulsory primary education received more attention. Many new areas were brought under compulsion. An epoch-making event of the period was the scheme of Basic Education formulated by Mahatma Gandhi. The plan of Post-War Educational Development in India prepared by the Central Advisory Board of Education popularly known as the Sargent Plan (1944) adopted the scheme of Basic Education with some modifications.

primary education (after 1947) (Ind.): the country has set before itself two goals in the field of primary education: (1) introduction of free and compulsory universal primary education for all children up to 14 years and (2)

the conversion of all primary schools to the basic pattern. Article 45 of the Constitution enjoins on the State to endeavour to provide free, compulsory and universal education for all children until they complete the age of 14 years. Two All India Educational Surveys have been carried out for assessing the possibilities of providing primary school within easy walking distance from the home of every child. An Assessment Committee was appointed in 1956 under the chairmanship of Shri G. Ramchandran to review comprehensively the progress of Basic education in the country. A National Institute of Basic Education was established in 1956. The National Council of Educational Research and Training was set up as an autonomous organisation in September 1961 to develop programme of high-level research and advanced training and extension and improvement in school education. Education at the primary stage, except for special schools and some primary schools in the urban areas of West Bengal is free throughout the country. Provision for enforcing compulsory attendance exists almost in all States.

primary group: two or more persons in intimate association. The most important primary groups are the family, friendship and work groups. They are considered primary in the sense that their influence upon the individual is relatively enduring.

'Primary School' report (Brit.): a report issued in 1931 by the Consultative Committee of the Board of Education, England, under the chairmanship of Sir W.H. Adow appointed to enquire into the courses of study suitable for children upto the age of 11 in Elementary Schools. The report, entitled 'The Primary Education', endorsed the earlier view of the report 'Education of the Adolescent' as to the division between primary and secondary at 11 plus. It advocated that the curriculum 'is to be thought of in terms of activity and experience, rather than knowledge to be acquired and facts to be stored'. It demanded the training of teachers for backward students, school building standards, size of a class of not more than 40 students and parental co-operation.

principle of effect: see 'effect, principle of'.

principle of use: see 'use, principle of'.

printing in India: the first book printed was the 'Doctrina Christina' by Giovanni Jonsalvez, a Portuguese missionary in 1577. There were five printing presses in India during the sixteenth century. They were at Goa, Ambalacatta, Cochin, Angamale and Panikkayal—all

set up by the Portuguese. The first printing press by the English was established at Madras in 1711 and an edition of the Tamil New Testament was published from it in 1714.

print script : a style of handwriting in which a pupil is taught to form the letters separately, as in a printed book, and not to connect them by strokes as in cursive script. In contrast to cursive script, the print script presents no difficulty to the reader, looks neat and artistic, and ensures economy of effort as the reading and writing scripts bear some similarity.

private school : an aided or un-aided school which is not operated by a public authority, whether or not it receives financial support from such authority.

prizes : Prizes and awards have long been considered as incentives for improvement and better results. This is the reason why the Annual Prize Distribution function has an important place in the life of a school. Some critics, however, feel that the practice of giving prizes implies that any work is not worth doing for its own sake but for the promise of a reward. Some teachers object to the use of prizes on the grounds that the outstanding students are doubly rewarded both with their own sense of satisfaction and the prizes they collect, while the rest of students suffer from a sense of disappointment and defeat and from not having any prizes. It may also be said against prizes that emphasis is on competition rather than on co-operation.

probability : the likelihood of occurrence in any instance of any of the total number of events that can occur in a situation involving chance. The term also implies the ratio of the number of expected events to the total number of equally likely events. It helps to measure chances.

probable error : probable deviation ; a measure that indicates the variability of a measure. The probable error is 0.6745 times the standard error.

probation, teacher : a trial period, may be of 1 to 3 or 4 years' duration, during which a teacher has to justify his efficiency or worthfulness for being employed in a permanent capacity.

problem method : a method using problem as the challenge or stimulus for learning. A problem stimulates the student to search for necessary material, to enquire, and to think critically for its solution. Teachers can make use of the method by posing problems as they occur incidentally during a work or by organizing a course into series of problems

that require solution. The steps in problem-solving may constitute (1) the recognition and statement of the problem, (2) proposal of a solution, (3) critical evaluation of the proposal and application of the solution and (4) verification of the results.

profession : an occupation requiring long and specialized preparation at a level of higher education and following its own special code of ethics.

professional ethics : see 'ethics, professional'.

professional growth : see 'growth, professional'.

professionalization of subject matter : the presentation of subject matter involving the exact material to be taught and the proper method to be used for effective classroom teaching.

professional reading : any reading related to general education or one's own special field which helps to accelerate one's professional growth.

profile chart : a graphic representation to indicate the relative position of the pupil on each of a battery of tests ; achievement, intelligence and personality.

profile graph : a graph indicating the performance of an individual on a series of tests or a series of ratings of his personality traits.

prognostic test : see 'test, prognostic'.

programme, equalization : see 'equalization programme'.

programme, instructional : an outline of the courses, activities, procedures offered by an institution for a given period.

programme, no failure : a programme of instruction designed to eliminate failure through the use of remedial teaching, pupil grouping, orientation classes, testing and paying greater attention to individual needs.

programmed instruction : a device of self instruction through the help of teaching machines and printed textbooks wherein carefully designed series of questions are presented in an orderly sequence. The idea is of pupil's instructing himself without the aid of the teacher. The subject or the material to be taught is 'programmed'.

progressive education : The progressive education stresses respect for the personality of the child, and increasing freedom for the child to make his decisions on his own. The progressive movement is associated with Rousseau, Pestalozzi, Herbart, Froebel, Francis W. Parker, Stanley Hall and Dewey, who gave new dimensions to this movement. The Progressive Education Association was set up in America in 1918 under the leadership of Mr. Stanwood Cobb as a reform movement and continued

until 1955. The movement gave special stress on the theories of Dewey and his interpreters.

projected aids: aids by which bright light is generally passed through a transparent picture, and an enlarged picture is thrown by means of a lens. Projected aids enable a large number of students to see an illustration and make lesson interesting also.

projective techniques: techniques employed by psychologists and psychiatrists for inferring personality traits and in the treatment of emotional maladjustments. The use of standardized visual stimuli or materials enables the psychologists to discover information regarding attitudes and feelings which the individual may be unwilling or unable to communicate. A large variety of projective techniques are in use, the most common being (i) use of play materials, (ii) dramatic representations of problem situation, (iii) finger painting, (iv) drawing, (v) Stern's cloud pictures, (vi) Rorschach test.

project method: the term came into prominence in 1918 when W.H. Kilpatrick of Teachers College, Columbia University characterized the project as a "whole-hearted purposeful activity proceeding in a social environment".

projector: an equipment for projecting enlarged images of motion-picture films, slides, opaque objects on a screen for group use.

projector, film-strip: an equipment for projecting each frame of a short length 35-mm. film as an enlarged still picture.

projector, lantern-slide: an equipment for projecting images of glass slides on a screen.

projector, opaque: an equipment for projecting the images of opaque material like pictures from a book, coins, leaves and insects on a screen.

projector, silent: an equipment for projecting silent motion pictures. Silent pictures can be projected on a sound projector, but sound motion pictures usually cannot be projected on a silent projector without damaging the film.

projector, sound: an equipment for projecting the pictures and reproducing the sound of a motion picture.

project sheet: a sheet containing complete instructions and directions for carrying out an assigned project.

promoters of Sanskrit: Swami Dayananda Sarasvati (1824-1883) and his Arya Samaj, Ramakrishna Paramhansa (1836-1886) and his great disciple Swami Vivekananda (1863-1902), Mrs. Annie Besant (1847-1933) and her Theosophical Society, Rabindranath Tagore (1861-1941) and his Visva-Bharati, Sri Aurobindo (1872-1950) and his Ashram at Pondi-

cherry contributed their share to the cultural revival of the country and the growth of interest in Sanskrit. During the second half of 19th century, literary men, educationists and scholars like Bankim Chandra Chatterji, Romesh Chunder Dutt, Gopal Bhandarkar, Kashinath Trimbak Telang, Har Prasad Sastri, Mahatma Hansraj, Swami Sradhanand, Bal Gangadhar Tilak and Madan Mohan Malaviya directly or indirectly promoted Sanskrit studies.

promotion, flexible: a promotion that allows a child to be promoted to the next higher class as and when he is able to do so. This is in contrast to the traditional type of promotion allowed after a set period.

pronunciation, research on teaching foreign language: A foreign language phonology involves four factors: (i) discrimination, i.e., differentiating between phonemes not usually distinguished in one's mother tongue, (2) articulation, i.e. motor movement for the production of phonemes, (3) integration i.e., assembling the phonemes of a connected speech, and (4) automaticity i.e., automatic production of correct sound. Adequate research is not available to decide whether priority should be given to the practice of discrimination or to that of sound production. Research is also needed whether the standard orthography of the language or some easy phonetic transcription should be used to present printed material to the beginners. The study of Hamilton and Haden (1950) has preferred the method of physiological description of articulations for teaching pronunciation and the system of phonetic transcription for teaching writing. The study of Richards and Appel (1956) has shown that delaying the use of any writing system will result in better pronunciation. These and similar investigations have done little to identify the best method of teaching pronunciation.

prophecy formula: the Spearman-Brown formula for estimating test reliability from a correlation coefficient between scores on "chance halves" of a test, also to estimate in advance the reliability of a test if its length is increased or decreased a certain number of times.

proselyting: a practice which allows the admission and attendance of a boy in a school for the special purpose of getting him in an athletic team.

PSSC: sec 'Physical Science Study Committee'.
psychiatry: a branch of medicine specializing in the diagnosis and treatment of mental illness.

psycho-analysis: primarily a method of psychotherapy developed by Sigmund Freud but also

a theory of the development and structure of personality. The method is used for investigating the deeper regions of the mind by the study of normal and abnormal reactions and unconscious mental processes. As a therapy, it is rather non-directive in approach and stresses the technique of free association.

psycho-drama : a specialized technique of psychotherapy designed to understand and treat mental and emotional problems by providing environment in which the client stages a drama and acts out the roles, situations and fantasies relating to his personal problems. Moreno was the first psychologist to establish a theatre of this type in Vienna. This was later developed in Massachusetts.

psychograph, individual : see 'individual psychograph'.

psychological approach : an approach to teaching in which new material, topics and ideas are presented through meaningful learning situations and in a manner appropriate to the learning process.

psychological data : data about an individual including his general mental health, predominant mood, self-assertion and self-abasement, sense of confidence, attitude towards self, etc. A child's psychological data proves very useful in planning effective educational and vocational guidance programmes for him.

psychology, analytical : the psychology of Carl Jung who broke away from the teachings of Freud and is the founder of the typological concept of introversion and extroversion.

psychology, animal : see 'animal psychology'.

psychology, child : see 'child psychology'.

psychology, clinical : see 'clinical psychology'.

psychology, depth : any psychology that tries to explain human emotional reactions through unconscious dynamic psychic activities. It covers all schools deriving from Freud and also includes many who have widely diverged from his teachings.

psychology, differential : the branch of psychology that deals with differences in traits among different individuals and differences within the same individuals depending on various factors like age, sex, heredity, race, environment, motivation, etc.

psychology, divisions and schools of : the divisions and schools may be based on differences in view points, on differences in methods of study, on differences of the subject matter or fields of activity.

psychology, educational : see 'educational psychology'.

psychology, existential : the view that psycho-

logy is concerned only with the analysis of human behaviour on the basis of observation and description of the existent data.

psychology, functional : the psychology which deals with mental phenomena as activities rather than as mental content and stresses the usefulness, values and consequences of such activities.

psychology, Gestalt : the school of psychology, founded by the German psychologists Max Wertheimer, Kurt Koffka and Wolfgang Kohler, which holds that all psychological phenomena as organized are undivided whole or gestalts and not mere summation of parts.

psychology, homeic or purposive : the psychology of William McDougall (1871-1928) which stresses the purposive and goal-seeking aspect of behaviour and emphasizes the role of instincts in human life. The doctrine of instincts at one time (1906-16) dominated the thinking in social sciences but now has lost its ground. The goal-seeking concept, however, has held an important place in psychological discussions.

psychology, individual : the teaching of Alfred Adler who broke away from the psychoanalysis of Freud and believed that feelings of inferiority and goals of superiority were the chief motivating forces of life, and not sexuality.

psychology, personalistic : the psychology of William Stern (1871-1939) which takes into account the total human personality as the only unit of psychology, in contrast to the division of personality into several traits.

psychology, topological : the psychology of Kurt Lewin which on the one hand is the extension of Gestalt psychology, and on the other hand makes use of mathematical topology as a tool of research.

psychosomatic : specifically refers to the influence of psychological factors on the physical aspects of health.

puberty : the beginning of adolescence and sexual maturation, usually starting at about the age of thirteen.

Public School : in England, technically it means a school that is in membership of the Headmasters' Conference. Public Schools are generally independent schools, though there are a few direct grant schools and maintained schools. In Scotland the term implies any school under the management of an Educational Authority. In America it means any school supported by tax revenues, controlled by public officials and open to all. In India, technically the term stands for a school that is recognized by the Public School Conference, India. These institutions are generally beyond the reach of the

middle classes due to high rates of fees. The majority of the students come from privileged homes. More favourable pupil-teacher ratio enables the teachers to keep in close personal touch with their pupils. The term is also loosely used for special institutions charging higher rates of fees and catering to the needs of those who can pay.

public-school relations : relations established between the public and the school by keeping the public informed about the school programme and activities, and by creating goodwill for the school.

punishment : see 'corporal punishment', 'deterrent punishment', 'exemplary punishment'.

pupil adjustment : see 'adjustment, pupil'.

pupil-clock-hours : a rough method of comparing the teaching loads of different teachers. It is calculated by multiplying the average number of pupils taught per day by the average number of hours of instruction per day by the number of days taught each week. If a teacher teaches on an average 35 pupils, 6 periods per day for 6 days, each period being 40 minutes long, then his teaching load in terms of pupil-clock-hours a week will be $\frac{35 \times 6 \times 6 \times 40}{60} = 840$.

pupillary reflex : see 'reflex, pupillary'.

pupil performance, dimensions of : see 'dimensions of pupil performance'.

pupil personnel : see 'personnel, pupil'.

pupil-teacher ratio : the number of pupils per teacher, calculated by dividing the total number of pupils in a school by the total number of teachers teaching them. The pupils are generally counted on the basis of enrolment ; but sometimes on the basis of average daily attend-

ance. The term is also phrased as 'teacher-pupil ratio' with the only difference that if the pupil-teacher ratio is expressed as 30 : 1, the teacher-pupil ratio will be expressed as 1 : 30. It may be taken as an index of the teaching load for making comparison among schools, though it is relatively an unsatisfactory index. Like all averages it gives an incomplete picture of the size of classes and the work load with teachers, some may have unusually heavy assignments while others may have very light work.

puppets : see 'marionettes'.

Purana (Ind.) : [meaning 'ancient'] non-Vedic scriptures written in Sanskrit and composed between 6th and 16th centuries dealing with legendary accounts of ancient times. There are 18 *Purānas* and a large number of lesser *Purānas* called *Upa-Purānas*. Usually the *Purāna* deals with the creation of the universe, the genealogy of the gods and rishis, the destruction and recreation of the universe ; and uses the form of a dialogue between a questioner and expounder. Generally each *Purāna* is devoted to the glorification of one deity, *Vishnu*, *Shiva* or *Brahmā*. The *Purānas* are called 'the Veda of the common folk' as they present religious material through legends, myths, and slokas.

purposive sampling : see 'sampling, purposive'.

push-and-pull drill : a handwriting practice of retracing upstrokes and downstrokes of a given length for developing motor control and precision in distancing, sizing and slanting of letters.

pyromania : a morbid urge to destroy property and buildings by setting them on fire.

pyrophobia : a morbid dread of fire.

Q

quadrivium : [Latin, lit., four ways] the four higher studies, viz., arithmetic, geometry, astronomy and music in the medieval curriculum.

quadrupedal locomotion : using all the four limbs.

quartile : one of the three points that divide a ranked distribution into four equal parts, each including 25 percent of the frequency or scores. The first quartile is the 25th percentile ; the second quartile is the 50th percentile or the median ; and the third quartile is the 75th percentile. The central tendency gives one

general idea of the distribution, but the method of quartiles helps to provide a more reliable measure of the distribution.

quartile deviation : a rough measure to find out the scatter in a given score. It is half the distance between 25th percentile and 75th percentile.

question, echo : see 'echo question'.

question, fixed-alternative : see 'fixed-alternative question'.

question, omnibus : see 'omnibus question'.

question, open-end : see 'open-end question'.

question, suggestive : see 'suggestive questions'.

question-and-answer method : a method of teaching and oral testing by means of questions put by the teacher and answers given by the pupils.

questioning : In the earlier times, the question-and-answer method was solely used to develop a lesson. Modern teaching procedures allow full scope for a variety of activities essential to effective learning. Questioning, however, has a proper place in all such procedures but its success depends upon the teacher's ability to use it. Questioning is used for several purposes like testing knowledge, discovering weaknesses, motivating interest, stimulating thinking, clarifying difficulties, directing attention to important areas, developing attitudes and appreciations and providing practice. A good question should be brief, clear, definite and purposive, and challenging and should be adapted to the ability and experience of the pupils.

questionnaire : a form containing a series of questions related to some psychological, social, educational or any other topic with space provided for indicating the response to each question, intended for submission to a number of people for reply with the object of obtaining data with regard to some problem. It helps to get information about interest, attitudes, opinions, judgments, or facts.

quintile : one of the four points that divide a ranked distribution into five equal parts, each including 20 percent of the frequency or scores. For instance, the first quintile is the 20th percentile and the fourth quintile is the 80th percentile.

quiz : a term popularly used for a short test given periodically for the purpose of measuring achievement on new material recently taught.

quota sampling : a method of sampling in which the investigator sets quotas for certain specified

categories, such as age, sex, and socio-economic status, and then selects the subjects who satisfy the quota requirements.

quotient : a number obtained by the division of one number (the dividend) by another number (the divisor); an index or ratio designed to indicate the relative position of the child on two related variables.

quotient, accomplishment : see 'accomplishment quotient'.

quotient, achievement : see 'accomplishment quotient'.

quotient, educational : see 'educational quotient'.

quotient, intelligence : see 'intelligence quotient'.

Qur'an : the sacred book of Islam, believed to be the inspired word of God, delivered by the angel Gabriel to the prophet Mohammed. The style is metrical and its strong cadences are read aloud eloquently with great appeal to hearers. It urges submission to the one God Allah. It is in classical Arabic, and becomes the standard for literature, philosophy, morals and religion.

Qutb-ud-din, education under (Ind.) : ruled 1206-1210. Qutb-ud-din Aibak was a man of literary tastes proficient in Persian and Arabic. He promoted Muhammadan learning by raising mosques which were centres of both religion and learning. His lieutenant Bakhtiyar Khilji by his destructive work jeopardized indigenous learning. Vikramasila, the great monastic university at Bihar was completely razed to the ground and it is said that not a single scholar was left alive. Odantapuri University and other Buddhist Vihāras met the same fate. Bakhtiyar, however, made some amends for his destructive work by building mosques and colleges in various parts of his domain for the spread of Muhammadan learning.

R

race prejudice : a biased attitude towards a race usually associated with unfavourable one.

Radhakrishnan Commission (Ind.) : see 'University Education Commission'.

radio education : the use of radio broadcast for educational purposes.

radio lesson guide : guide material prepared for a radio lesson which helps the preparation, listening, and follow-up of the broadcast.

raga (Ind.) : the term is used for a class of melodies based on a series of five or more notes. Rāga is the highest expression of Indian classical music. According to orthodox theory there are six basic rāgas : *Bhairava*, *Kaushika*, *Hindola*, *Deepaka*, *Shrirāga*, and *Megha*. Besides the basic rāgas, there are *rāginis*, personified as the wives of the masculine rāgas. It is believed that each rāga creates a specific

emotional effect in the mind of the listeners if sung at the proper time of day or night. *Bhairava* is suitable to be performed at day, *Megha* in the morning, *Deepaka* and *Shrirūga* in the afternoon, and *Hindola* and *Kaushika* at night. (Also see *Deepaka*, *Hindola*, *Kedāra*, *Malhār*, *Mūlka* and *Megha rūgas*.)

Raja Bhoja, education under (Ind.): ruled 1018-1060. Works on astronomy, architecture, the art of poetry and other subjects are attributed to Raja Bhoja who reigned gloriously for more than forty years. His fame as an enlightened patron of learning and a skilled author remains undimmed. Bhoja's Sanskrit college at Dhara seems to have been held in a temple dedicated to Sarasvati, the goddess of learning. Valuable compositions have been recovered from engraved slabs of stone fixed to its walls.

rajas (Ind.): [lit. passion] one of the *gunas* or constituent principles of Prakriti. It is attribute of movement, force, energy, power and is associated with red colour. It resides in life and produces egoism, ambition and selfishness. It is inherent in bitter, saline, sour, pungent and astringent food including meat, fish and poultry, and is the attribute of tall muscular, energetic and passionate type of men.

Rajasthani school of painting (Ind.): rose and flourished under the patronage of the kings and princes of Rajputana about 1550 to 1850. The school was directly influenced by the Moghul artists, and produced splendid murals and excellent miniatures. The themes included scenes from the Epics and the life of Krishna, domestic scenes, and portrayal of seasons and *rūgas* (musical modes).

Raja-yoga (Ind.): [lit., King-yoga] a form of *Yoga* laying great stress on mental and spiritual culture rather than physical culture. Its aim is to make man a master over all his mental and spiritual needs with complete non-dependence on anything outside himself. It recognized Hath-yoga as an instrument to lessen or remove certain obstacles in its way, but it confines to the last four stages: *prāṇāyāma*, *pratyāhāra*, *dhyāna*, and *samādhi*.

Ramanuja: a philosopher born near Madras. Like Shankarāchārya he taught in many parts of India. To him the best means of salvation was devotion, and the best *Yoga* was *Bhakti-yoga*. His God was a personal being who needed man, as man needed God, unlike the impersonal universal soul of Shankarāchārya. The individual soul was one with God, but yet separate, and, therefore, the system of Rāmānuja was known as *Vishishtādvaita* (qualified monism). Madhva in the 13th century

developed Rāmānuja's doctrines in a different direction and founded *Dvaita* (dualism).

Ramayana (Ind.): one of the two great Indian epics, the other being the *Mahābhārata*. The sage Vālmiki is the author of the epic which is little more than one quarter of the size of the *Mahābhārata* and is divided into seven books called *kānda*. The epic tells the story of Rāma, his marriage with Sitā after winning her hand in a great archery contest, his voluntary exile of fourteen years with Sitā and his brother Lakshman in order to fulfil the promise of his father Dashratha made unaware to his step-mother Kaikeyi, Rāvana's carrying Sitā off to Lankā, Rāma's building a causeway of stones across the sea of Lanka with the aid of the *vānara* hosts, the slaying of Rāvana and his hosts, the rescue of Sitā, the banishment of Sitā, and her reunion with Rāma. Rāmāyana is a great source of inspiration for the Hindus for the various noble ideals set forth therein.

random sampling: see 'sampling, random'.

range: the difference between the highest score and the lowest score in a frequency distribution. It is a crude measure of the variability of a distribution.

rank-difference correlation: a coefficient of correlation based on the differences of separate rankings of a person on two different variables.

rank order: the number or the position of an individual in relation to others in the group when the individuals are being counted from the top down, the highest individual may be given the rank of one and the next two and so on.

rapport, emotional: appropriate response of an individual to emotional situations.

rating: a method of estimating the amount of aptitude, interest, ability, or other characteristic that an individual is considered to have. The distinction between rating and measurement is very narrow, the latter may involve a direct perceptual comparison.

rating, man-to-man: see 'man-to-man rating'.

rating of teachers: see 'teachers, rating of'.

rating scale: an instrument used by a teacher in the evaluation of pupil's personality attitude, or achievement. Such scales generally provide instructions how to make the evaluation more objective.

rating scale, descriptive: a rating device for estimating the degree to which each of the several specific traits an individual possesses. The judgment is recorded by checking one of the several descriptive statements given for each trait.

rational equivalence: a method devised by

- Kuder and Richardson to find out the test reliability. It stresses the intercorrelations of the items in a test and the correlations of the items with the test as a whole.
- rationalism**: the philosophical doctrine that considers reason a source of knowledge and disregards knowledge predicated on unreasoned religious belief or on authoritarianism. Schools of philosophy affected by rationalism were usually favourable to the introduction of the new scientific studies.
- rationalization**: one of the defence mechanisms of adjustment. The process of justifying one's practices, beliefs and behaviour when they are challenged by oneself or others; the justification given as a defence may not be based on actual reasons.
- raw score**: the actual score or result obtained directly from the scoring of a test or any other measuring device, without any adjustment.
- Razia**, education under Sultana (*Ind.*): ruled 1236-1240. The gifted daughter of Altamash was well versed in Qur'an and was a patron of learned men. She established a college in Delhi named Muizzi College.
- reaction formation**: one of the several defence mechanisms of adjustment. The establishment of a trait to prevent the recognition of a repressed impulse, e.g., to develop a trait of sympathy to deny hostility.
- readability**: the characteristic of a reading material that makes interesting reading and is understandable to those for whom it is written or prepared.
- reader, basal**: a textbook, part of a graded series, for reading. The courses are built from grade to grade on previous learning experiences. The use of such a series ensures continuity and co-ordination of the entire reading programme through all the classes in which that series is used.
- reader, literary**: a reading book containing selections made on the basis of excellence of expression.
- reader, supplementary**: a reading book which is used in addition to a basal reader to expand, augment or reinforce reading experience.
- readiness**: a state or condition of the person that makes it possible for him to learn or undertake a given task. Readiness depends upon the learner's level of maturity, previous experience and mental and emotional set. It is a composite of many qualities and conditions and differs from one learning task to another. Examples of readiness are, reading readiness, writing readiness, mathematical readiness, etc.
- readiness, principle of**: principle formulated by E.L. Thorndike which states briefly as follows: When an individual is ready to act in a particular way, it is satisfying to do so, and annoying not to do so. According to this principle, learner's mind must be set in a way that he is ready to learn.
- readiness test**: a test that measures the ability of the subject to undertake a new type of specific learning, particularly for primary classes.
- reading, assimilative**: a reading in which the comprehension of the literal meaning is more important than the reflection on ideas.
- reading, associational**: a reading which helps to bring past experiences to bear on the vacuous experience provided by the present reading.
- reading, choral**: group oral reading in which intonation and gesture help to produce choral effects.
- reading, collateral**: see 'collateral reading'.
- reading, extensive**: wide reading from a variety of sources in contrast to intensive reading restricted to a detailed study of a limited amount of reading material. Extensive reading has the advantage of providing a rich experience, developing new concepts and a wealth of vocabulary, enlarging the capacity of understanding, stimulating intellectual interests, and building favourable attitudes towards learning. When the extensive reading is in total disregard of intensive reading, it may fail to achieve systematic and logical organization of subject matter, to provide a core of common experience necessary for a certain class or age group and to afford opportunity for practice in careful and detailed study, discussion and thinking. The desirable balance should be ensured.
- reading, free**: reading done by a child at his own free will during leisure.
- reading, intensive**: detailed and careful reading with proper attention to grammar, language, expression, vocabulary and ideas.
- reading, professional**: see 'professional reading'.
- reading, rate of**: speed of reading which may be measured by the number of words or letters comprehended per minute or per second. There is a positive correlation, though not very high, between the rate of reading and comprehension. The faster reader will generally understand better. It is not difficult to increase the reading speed through proper and incessant practice. It would be a good thing to be able to read faster because it will speed up one's work in all the subjects for the rest of one's life. Speed, however, has to take care of comprehension; for speed without understanding has no meaning. When comprehension is

adequate the following may help to improve the rate of reading : the awareness of the utility of reading faster, reading large amount of easy and interesting material, measuring speed and comprehension on similar material at regular intervals and maintaining graphic records of progress made.

reading, remedial : individual or group attention paid for correcting faulty reading habits and for increasing the speed and accuracy of reading.

reading, silent : see 'silent reading'.

reading ability : see 'ability'.

reading difficulty : a lack of reading skill, or experiencing difficulty due to the reading material which is difficult in relation to the age and intelligence of the reader.

reading disability : lack of ability to read due to some physical, mental or other causes.

reading interests : Interests differ among children at every age but several surveys have indicated some general trends. In the beginning children enjoy fairy tales, mythical creatures and talking animals. Interest in the imaginative and fanciful stories declines after eight or nine years, when the children start liking stories of adventure and mystery, short biographies, historical tales and reading material related to science, invention, hobbies and comics. The girls share the boys' interest for adventure and mystery but are not much interested in science reading and the boys do not much care about sentimental stories.

reading list : a selected list of books and articles suggested for reading.

reading material : see 'material, reading'.

reading methods for beginners : Methods may be broadly divided into synthetic and analytical methods. Under synthetic methods, beginning is made with parts which help to build the whole. Such examples may be found in 'alphabet method' beginning with the names of alphabets and their various combination in small groups, and phonic or 'phonetic method' beginning with the sound values of the letters and their word formation. 'Look and Say' method, and Sentence method are examples of analytic method which is currently favoured for being easy, interesting and meaningful for the children.

real class limits : the actual lower and upper limits of a class interval in a frequency distribution.

realism : a movement against educational practice that tends to become bookish, verbal, abstract or unpractical. Education should be related to life, needs and aspirations of the people so as to become a powerful instrument

of social, economic and cultural transformation necessary for the realization of national goals. In teaching the principle of realism should be observed so that the knowledge gained may have vital bearing on the pupils' surroundings, and the gulf between the classroom and the outside world may be narrowed down. Realism in school curriculum may be seen in three forms. The curriculum may remain literary but may cater to the current needs of society, or the curriculum may provide opportunities of learning first hand through direct social contact, or it may largely be made up of the sciences so that contact with the physical world of facts through sentences is possible.

realism, social : an educational movement of the 16th and 17th centuries which aimed at preparing the student for a successful life as a man of the world through extensive travel and studying modern languages and contemporary institutions. The learning of classical languages was not considered necessary. Montaigne (1533-1592) was an outstanding exponent of the movement.

real-life situation : common situation met by the children in their everyday life which is used in preparing curriculum and planning school programmes.

rearrangement test : see 'test, rearrangement'.

reasoning : process of solving problems through logical thinking, seeing and developing relationships between ideas, to reach logical conclusions.

reasoning, animistic : see 'animistic reasoning'.

reasoning, arithmetic : the thinking involved in verbal arithmetical problems.

reasoning, inductive : see 'inductive reasoning'.

record, progress : see 'progress record'.

recall : reproduction of previously learnt knowledge ; a method of testing retention in which the subject reproduces previously learnt knowledge with minimum cues.

recall, oral : the practice of reading a passage or selection once or several times and thereafter recounting in one's own words all that can be recalled.

recall, written : the practice of reading a passage or selection once or several times, and thereafter writing out all that can be recalled.

recall item : a type of test item where the subject responds by writing words, numbers, or phrases to complete the meaning of a sentence or statement.

recapitulation : a sub-step in a lesson wherein the teacher goes over the important points once again for fixing them in the mind of his pupils and for bringing out the relative bearings or

connections in proper perspective.

recapitulatory theory of play : a theory expounded by Stenley Hall that play is the reminiscence of the past. The activities of the ancient past are reflected in the play activities of the children. The play activities of children like hide and seek and building houses were the serious activities of the primitive adults in ancient times.

recess, school : a rest period from regular school work. This may occur once or twice during the school day and is utilized by the children for rest, recreational activities or free play.

recitation, socialized : see 'socialized recitation'.

recitation, textbook : an oral exercise to check the pupil's mastery of textual material.

recitation method : a method of oral repetition of what the pupils have individually learned and may include oral questions and answers, but it may not necessarily mean rote learning.

recognition test : see 'test, recognition'.

recognition vocabulary : see 'vocabulary, recognition'.

recommendation (Can.) : the system of promotion to the next higher class on the recommendation of the teachers wholly depending on the year's work of the student.

reconstruction of experience : term introduced by Dewey in his discussion of education as a reconstruction of experience. "Education is that reconstruction or reorganization of experience which adds to the meaning of experience, and which increases ability to direct the course of subsequent experience." Present and past experience must be examined and evaluated critically so that future experiences may become more meaningful.

record, anecdotal : see 'anecdotal record'.

record, cumulative : see 'cumulative record card'.

record, Kuder's preference : see 'Kuder's Preference Record'.

record, personnel : see 'personnel record'.

recreation : any pleasing activity by which a person refreshes himself physically or mentally normally associated with leisure time. In recreation individual finds opportunity for self expression and derives enjoyment and relaxation. Recreational activities cover a wide field of human interests. Activities may be connected with games, sports, music, dancing, arts, theatre, excursion, gardening, social service, writing, reading, hobbies, etc. The provision of recreational opportunities for all has become a thing of public concern and the beginning is being made in the schools.

recruitment, teacher : see 'teacher recruitment'.

rectangular distribution : a frequency distribution having the same number of observations in all class intervals within a certain range and hence has a rectangular shape when represented graphically.

recurring expenditure : a type of expenditure that an institution has to incur again and again, as on items like teacher's salary, dearness allowance, rent, raw material etc.

reference group : any group with which the individual identifies himself and uses the group as a standard for self evaluation and as a source of his personal values and goals.

reflective theory of teaching social studies : see 'social studies, reflective theory of teaching'.

reflex, defence : an involuntary protective movement like blinking, or withdrawal of a part of the body as a defence from a stimulus.

reflex, ocular-neck : an involuntary backward bending of the neck when a sudden flash of light stimulates the eyes.

reflex, pupillary : an involuntary constriction or dilation of the pupil of the eye due to sudden change in the intensity of illumination.

reform school or reformatory : a type of school providing education for the maladjusted youth, usually delinquents. Ordinary schools fail to deal with such pupils successfully.

registrar : the chief administrative official in a university.

regression : a psychological mechanism of retreat to earlier or more primitive form of behaviour or to an imaginary world. Children and adults resort to this mechanism when they are faced with difficulties and frustration in the real world.

regressive method of teaching history : a method of teaching history which is the opposite of the chronological method. In this method one goes back from the familiar present to the unfamiliar past.

relative mark : see 'mark, relative'.

relative perceptual span : see 'perceptual span, relative'.

relative variability : a measure of variability of observation in a distribution expressed as a percentage or proportion of the measure of central tendency.

released time (U.S.A.) : time granted by the school to the pupils for attending religious classes conducted outside the school by representatives of different faiths or denominations.

release therapy : a form of psychotherapy for obtaining improved adjustment by allowing free expression to destructive impulses and deep-seated conflicts in the presence of the therapist. It is similar to play therapy and has a sense of

eatharsis.

reliability: self-consistency or accuracy of a measuring instrument or of the entire measuring process, the degree to which separate independent measurements of the same agree with each other instrument, the degree of accuracy to which a measuring instrument measures whatever it proposes to measure.

reliability, coefficient: the coefficient of correlation obtained between scores made by the same pupils on the administration of the same test on two different occasions. (also called test-retest reliability)

religious education: the advocates of a secularized school system feel that teaching of religion may defeat the objectives of equal educational opportunity and may engender controversy. The secular aspect of education would indicate that instruction in religion properly belongs to the home and religious institutions and not to the educational institutions. On the other side, the arguments advanced for religious instruction in schools are based on the belief that the development of virtue and the realization of a complete life are only possible through religious education. The constitution of India provides freedom of conscience and free profession and practice of religion, and regarding freedom as to attendance at religious instruction in certain educational institutions it provides that in State recognized or State aided institutions, no person shall be required to take part in religious instruction imparted in such institution or attend any religious worship conducted in the institution without his consent. The constitution also provides that "no religious instruction shall be provided in any educational institution wholly maintained out of State funds. There is however no such restriction in institutions administered by the State but established under any endowment or trust which requires the imparting of religious instruction.

Religious and Moral Education, Committee on (Ind.): see 'Committee on Religious and Moral Education'.

remedial: having the purpose of correction of observed difficulties and weaknesses in performance.

remedial teaching: special instruction planned to remove specific deficiency or learning difficulty of a pupil not due to inferior general ability. The diagnostic measures are necessary to understand the nature of weakness, otherwise remedial teaching will remain merely the extension of regular teaching. It is essential for the teacher to know the psychology of the

learning process to plan an effective remedial instruction which, in fact is differentiated and intensified instruction with specific objectives. (syn., remedial instruction.)

Renaissance: the revival of learning and intellectual awakening in Europe in the later Middle Ages until the middle of the 16th century, providing a new standard of knowledge and wider outlook upon life. The early idealists of the Renaissance were concerned with the study of the ancient literature of Greek and Rome for its reproduction in the modern world. The aim of education was to draw from the same antique sources and to adjust to the needs of a Christian community. Medieval education was primarily technical, the new education was a preparation for life. Liberal education and humanist have ever since been convertible terms.

Report, Abbot-Wood: see 'Abbot-Wood Report'.

Report, Aberdare (Brit.): see 'Aberdare Report'.

Report, Albemarle (Brit.): see 'Albemarle Report'.

Report, Barlow (Brit.): see 'Barlow Report'.

Report, Beloe (Brit.): see 'Beloe Report'.

Report, Bryce (Brit.): see 'Bryce Report'.

Report, Clarendon (Brit.): see 'Clarendon Report'.

Report, Cross (Brit.): see 'Cross Report'.

Report, Curtis (Brit.): see 'Curtis Report'.

Report, Crowther (Brit.): see 'Crowther Report'.

Report, Devonshire: see 'Devonshire Report'.

Report, Fleming: see 'Fleming Report'.

Report, Kunzru Committee (Ind.): see 'Kunzru Committee Report'.

Report, McNair (Brit.): see 'McNair Report'.

Report, Narendra Dev Committee (Ind.): see 'Acharya Narendra Dev Committee Report (1939)' and 'Acharya Narendra Dev Committee Report (1953)'.

Report, Newcastle (Brit.): see 'Newcastle Report'.

Report, Newsom (Brit.): see 'Newsom Report'.

Report, Norwood (Brit.): see 'Norwood Report'.

Report, Percy (Brit.): see 'Percy Report'.

Report, Plowden (Brit.): see 'Plowden Report'.

Report, Robbins: see 'Robbins Report'.

Report, Samuelson (Brit.): see 'Samuelson Report'.

Report, Spens (Brit.): see 'Spens Report'.

Report, Taunton (Brit.): see 'Taunton Report'.

Report of Acharya Narendra Dev Committee (Ind.): see 'Acharya Narendra Dev Committee (1939)' and 'Acharya Narendra Dev Committee (1953)'.

Report of the Assessment Committee on Basic

Education (*Ind.*) : see 'Assessment Committee on Basic Education'.

Report of the Calcutta University Commission (*Ind.*) : see 'Calcutta University Commission'.

Report of the Committee of Members of Parliament on Higher Education (*Ind.*) : see 'Committee of Members of Parliament on Higher Education'.

Report of the Committee on Emotional Integration (*Ind.*) : see 'Committee on Emotional Integration'.

Report of the Committee on Financing Educational Development (*Ind.*) : see 'Committee on Financial Educational Development'.

Report of the Committee on Higher Education for Rural Areas (*Ind.*) : see 'Committee on Higher Education for Rural Areas'.

Report of the Committee on Pre-Primary Education in Mysore State (*Ind.*) : see 'Committee on Pre-Primary Education in Mysore State'.

Report of the Committee on Religious and Moral Education (*Ind.*) : see 'Committee on Religious and Moral Education'.

Report of the Committee on School Textbooks (*Ind.*) : see 'Committee on School Textbooks'.

Report of the Education Commission 1964-66 (*Ind.*) : see 'Education Commission 1964-66'.

Report of the Hartog Committee : see 'Hartog Committee'.

Report of the Indian Education Commission : see 'Indian Education Commission'.

Report of the Indian Parliamentary and Scientific Committee : see 'Indian Parliamentary and Scientific Committee'.

Report of the National Committee on Women's Education (*Ind.*) : see 'National Committee on Women's Education'.

Report of the National Service Committee (*Ind.*) : see 'National Service Committee'.

Report of the Sanskrit Commission (*Ind.*) : see 'Sanskrit Commission'.

Report of the Secondary Education Commission (*Ind.*) : see 'Secondary Education Commission'.

Report of the University Education Commission (1948-49) (*Ind.*) : see 'University Education Commission (1948-49)'.

Report of the Wardha Education Committee (*Ind.*) : see 'Wardha Education Committee'.

Reports on Education, Adam's (*Ind.*) : see 'Adam's Reports on Education'.

repression : holding back psychological activities from conscious awareness, or pushing them out of consciousness into the subconscious. The term has other implications that repression is the result of censorship, that it is a defence mechanism and that the repressed activities project symbolic representations into the

conscious state.

reproducibility, coefficient of : an index invented by Guttman to denote the proportion of responses to a test which can be predicted from the total scores and the knowledge of the item difficulty.

research, analytic : see 'analytic research'.

research, attitude : see 'attitude research'.

research, basic : scientific investigation oriented to the establishment of new theory.

research, curriculum : systematic study, investigation and evaluation of school material, programmes, activities and experience in relation to the age, ability, interests and needs of the children.

research, educational : see 'educational research'.

research, historical : see 'historical research'.

research contamination : the presence of uncontrolled variable, personal bias or other factors which treats the groups differently, thus destroying the usefulness of the test or research in hand.

research on teaching foreign languages : see 'foreign languages, research on teaching'.

research on teaching mathematics : see 'mathematics, research on teaching'.

research on teaching science : see 'science, research on teaching'.

research on teaching social studies : see 'social studies, research on teaching'.

research on teaching vocabulary : see 'vocabulary, research on teaching'.

Resolution (1904) of the Government of India on Education : education policy published in the form of a government resolution on 11th March 1904 by Lord Curzon. Regarding recognition of secondary schools it stated, "Whether these schools are managed by public authority or by private persons, and whether they received aid from public funds or not, the Government is bound in the interests of the community to see that the education provided in them is sound. It must, for example, satisfy itself in each case that a secondary school is usually wanted, that its financial stability is assured, that its managing body where there is one, is properly constituted, that it teaches the proper subjects upto a proper standard, that due provision has been made for the instruction, health, recreation, and discipline of the pupils, that the teachers are suitable as regards character, number and qualifications, and that the fees to be paid will not involve such competition with any existing schools as will be unfair and injurious to the interests of education. Such are the conditions upon which alone schools should be eligible to receive

grants-in-aid or to send up pupils to compete for, or receive pupils in enjoyment of, Government scholarships, and schools complying with them will be ranked as 'recognised' schools." These conditions were soon incorporated in the provincial codes of grant-in-aid.

Resolution (1913) of the Government of India on Education : the resolution advocating three cardinal principles of educational policy (1) Instead of increasing the number of existing institutions their standard should be raised ; (2) The curricula of primary and secondary schools should be made more practical and useful ; (3) Facilities of higher studies and research should be provided in India so that Indian students may not have to go abroad.

resource people : the phrase is used for those persons who having special abilities, backgrounds or achievements are willing to share their knowledge and experience with the school children. Resource people provide realistic educational experiences as when a foreigner talks about his country, or an artist about his art, or an army officer tells how a battle is fought or a doctor how lives are saved.

response, abient : a behaviour in which the organism moves away from the stimulus or removes the stimulus, a case of negative response.

response, adient : a behaviour in which the organism is attracted towards the stimulus and therefore moves towards it or makes effort to maintain the stimulus, a case of positive response.

retardation : failure to develop as far as the average ; progress at less than the normal rate. A 'retarded child' is one whose development or progress has been slowed up, especially in achievements or intelligence, his IQ being roughly between 70 and 85. Even normal children are sometimes referred to as retarded when they are behind-hand in their school work.

retention, differential : see 'differential retention'.

retroactive inhibition : the inability to recall previously learnt material of a series, as the series becomes too long or too difficult to comprehend ; the erasing effect of a new experience on the earlier experience.

rhetoric : originally implied the art of oratory, now used for the art of expressive speech or literary composition, though sometimes derogatorily used for artificiality in language.

rhetorical school : school originated in the ancient Greek and prevalent in the ancient Rome for training young men in rhetoric

and oratory, a qualification for public life.

rights of the child : a declaration of the rights of the child unanimously adopted and proclaimed by the United Nations General Assembly, on 20th November 1959, setting forth those rights and freedom which the international community agreed every child, without any exception whatsoever, should enjoy.

Rigveda (Ind.) : the earliest work of India. There is nothing more ancient than the hymns of *Rigveda* in the whole Aryan world. It is a monument of ancient India's intellectual or spiritual progress, a collection and selection of 1028 hymns out of a vast literature of hymns, accumulated through several centuries, representing various kinds of literary achievements and religious speculations and containing sublime expressions of poetry, sacrificial songs and hymns meant for sacrificial purposes. The compilation includes 10,580 verses in 70 thousand lines of 153,826 words.

rishi (Ind.) : a seer. *Rishis* were considered as the direct seers of truth that came from *tapas* or *yoga*, concentrated contemplation. The primordial *Rigveda* came into being in the original hymns as they were revealed by their *Rishis*.

rivalry, sibling : see 'sibling rivalry'.

Robbins Report (Brit.) : a report of the Committee on Higher Education appointed in 1961 under the chairmanship of Lord Robbins, and published in 1963. The cost of the report including sample surveys was £128,770, unprecedented in the study of English education. It recommended the setting up of a new Ministry of Arts and Sciences, the establishment of University Schools of Education as a development from the Institutes of Education, the development of 5 special institutions for scientific and technological education and research, the foundation of 6 new universities and the creation of a Grants Commission, the lineal successor of the University Grants Committee, with the responsibility of looking after the entire body of autonomous institutions, colleges and universities.

role : a pattern of feelings, beliefs, attitudes, values and behaviour that a person in a particular social status is expected to exhibit.

role conflict : the situation in which an individual is expected to play two or more different roles that involve responses that are competing or antagonistic, and thus cause conflict.

role incompatibility : the situation in which an individual believes that other persons hold different and incompatible expectations about how he should perform a particular role.

Roman concept of education : the Romans were essentially a utilitarian people and judged all things by their usefulness. "Passing from Athens to Rome is a passing from poetry to prose, from an artist's prime to a business house ; from a people seeking to make the present beautiful and to enjoy it rationally and nobly, to a people that subordinates present enjoyment to future gain ; from a people that lives by reason to people that lives by authority." (Thomas Davidson, *A History of Education*, New York, Charles Scribner's Sons, 1900, P. 106.)

room, ungraded : see 'ungraded room'.

Rorschach test : a diagnostic test of personality devised by a Swiss psychiatrist, Herman Rorschach. The test uses 10 cards with standardized ink blots and the subject is asked to tell what he sees in the blots in each card. The subject is later questioned about his responses. It is believed that each category of response reflects the operation of certain personality traits.

rote learning : see 'learning rote'.

Royal Academy of Arts, The : see 'Academy of Arts, The Royal'.

Rugby Chapel : a poem by Mathew Arnold underlines the importance of a teacher :

"Yes ! I believe that there lived
Others like thee in the past ;
Not like the men of the crowd
Who all round me to-day
Bluster or eringe, and make life
Hideous, and arid, and vile ;
But souls temper'd with fire,
Fervent, heroic, and good,
Helpers and friends of mankind..."

Rugby School (Brit.) : a famous public school founded by Lawrence Sheriff in 1567. Thomas Arnold was its headmaster from 1828 to 1842. Rugby football was originated here when William Webb Ellis 'with a fine disregard of the rules of football as played in his time, first took the ball in his arms and ran with it' in 1823. A vivid picture of school life at Rugby is to be found in 'Tom Brown's Schooldays' by Hughes.

rules of Benedict : see 'Benedict, rules of'.

running words : the total number of words in a passage including words that are repeated.

rupaka (Ind.) : a term used for drama. In the *Dasarupaka* of Dhananjaya, accounts of ten forms of drama are given : (1) *Nataka*, the highest form of drama with a mythological theme having god or king as a hero ; (2) *Prakarna*, like *nataka* with a hero below the rank of royalty ; (3) *Bhāna*, a comical monologue ; (4) *Prahasana*, a farce ; (5) *Dina*, a legendary play ; (6) *Vyāyoga*, a military spectacle ; (7) *Samavakāra*, a supernatural drama ; (8) *Vithi*, a one-act play with two or three actors ; (9) *Angka*, a simple one-act play ; (10) *Jit-mriga*, a play with a hero, his rival and a girl who is sought after.

rural institute : an institute of higher learning in a rural area, which organizes extension work, offers diploma courses and acts as a cultural and training centre.

rustication : the exclusion of a student from a school, college or university for a certain period as a punishment for some breach of discipline. It is to be distinguished from 'expulsion' which is total exclusion from the institution.

S

Sabbath school : a school held on the Jewish Sabbath (Saturday) for providing religious instruction to the Jewish children.

sabbatical leave : leave of absence with or without pay allowed to a university or school teacher for the purposes of travel, study, and other means of self improvement. The practice of granting sabbatical leave is considered desirable as it helps the professional growth of a teacher. Teacher has to complete a prescribed period of service before becoming eligible for the leave which is usually for a full term or year but which cannot be used for financial

gain.

Sabha parva (Ind.) : [lit., 'assembly section'] the second book of the *Mahābhārata* containing—the assembly of the princes at Hastinapura, loss of kingdom by Yudhishtira in a game of dice with Sakuni ; the second exile of the Pāndavas.

sacrifice (Yajna) (Ind.) : see 'Yajna'.

Sadhana (Ind.) : the pursuit of any method for attaining *Siddhi* i.e., supernatural or psychic powers. The individual practising *Sādhana* is called a *Sādhaka* ; and a *Sādhaka* who has been successful in attaining *Siddhi* is called a *Sādhu*.

Sadler Commission : see 'Calcutta University Commission'.

safety education : instructions which help to avoid the common hazards of life that are avoidable. Since homes and schools now include a wide variety of conveniences and innovations possessing inherent dangers, it has become of prime importance to meet these dangers effectively through safety education programmes. Any such programme should contain knowledge of sources of potential physical injury and what to be done in an emergency, attitudes of safety consciousness, automatic response to emergency signals, application of safety programme, skill for special tasks, co-operation, and self-control. Check lists for fire-prevention, for school bus safety, for civil defence and for general school safety may prove helpful. School safety is the responsibility of administrators, principals, teachers, and pupils and should receive regular attention.

Sahitya Akademi (Ind.) : see 'National Akademi'.

Sainik Schools (Ind.) : residential schools preparing boys academically and physically for entry into the National Defence Academy and other walks of life. There are 15 Sainik Schools in India, one in each State (excepting Kashmir and Nagaland). The admission is generally confined to class V. The tuition fees are very high, but the State governments have instituted liberal scholarship schemes for meritorious boys having no means to pay for the fees.

Salar Jung Museum (Ind.) : the Museum built out of the vast and valuable personal collections of art objects and manuscripts left by the late Nawab Salar Jung in Hyderabad. The Salar Jung Library attached to the Museum contains fifty-thousand volumes of manuscripts and printed books in Persian, Arabic and Urdu. The government of India took over the Salar Jung Museum in 1958 for reorganizing and developing it as a National Museum for the South.

salary schedule, merit-type (U.S.A.) : a salary scale for teachers, principals and supervisors in which increased salary is paid according to proficiency rather than length of service.

salary schedule, permanent : a fixed salary scale based on the degree of professional training and length of teaching experience.

salary schedule, single : a system of paying the same salary to all the teachers having similar professional training and teaching experience and given similar teaching responsibilities.

Salotgi Temple College (Ind.) : a famous centre

of Vedic learning which flourished during 10th and 11th centuries A.D. at Salotgi in Bijapur District. The college was run in a spacious hall attached to the temple of Trayi-Purusha. The college offered free boarding, lodging and education to 200 students from endowments received for the purpose.

Salya Parva (Ind.) : 'Salya section', the ninth book of the *Mahābhārata* containing the battle under the command of Salya when Duryodhana gets wounded and only three Kauravas are left alive.

samadhi (Ind.) : a condition of super consciousness, a trance-like state; the last stage of yoga. It is considered a state of profound absorption and participation in the bliss of the Absolute, beyond the plane of mental operations. *Samādhi* may be of two types : (1) *Savikalpa* in which the distinction of the worshipper and the worshipped remains, and (2) *Nirvikalpa* in which no such distinction exists and the devotee completely merges with the deity.

Samavartana (Ind.) : [lit., the returning home] a convocation ritual of ancient India performed at the end of the *Brahmacharya* period to mark the close of studentship. The ceremony included a number of acts signifying the end of a period of austerity. The student was first required to shut himself up in a room throughout the morning, as it was said, his superior lustre might not put the sun to shame. The student came out of the room at the mid-day, shaved his head and beard, relinquished his girdle and deer-skin, and donned new garments after a perfumed bath. He was now offered ornaments, turban, umbrella and shoes which were a taboo during the studentship. At the time of parting the teacher would give a valedictory message to the *śanātak* (graduate) regarding his future duties.

Samaveda (Ind.) : It consists of verses mostly from *Rigveda* arranged in two parts : (1) the *Archika* of 585 single stanzas and (2) the *Uttarārchika* of 400 chants, mostly of 3 stanzas each. The *Archika* helped the priest to master the melody to be applied to certain stanzas during sacrificial ceremonies. It is like a song-book giving complete text and tune of songs. Educationally *Samaveda* throws light on the development of Indian music.

sample : part of the population selected for investigation and which represents the entire population. A study of this sample reveals truths concerning the population from which it has been selected.

sample, purposive : a certain portion of the population arbitrarily selected because it

is known to be representative of the total population or because it meets certain specific purposes.

sampling : process of selecting a limited number of individuals, items, cases or observable data as representative of the large group from which they are chosen so that certain truths or characteristics revealed from the sample will be valid for the whole group.

sampling incidental : method of using a group as a sample solely because it is readily available.

sampling, random : a method of selecting a sample of the desired size in such a manner that each member of the population has an equal and independent chance of being selected in the sample. Sample itself implies a part taken at random in contrast to a selection.

sampling stratified : method of selecting the sample obtained by dividing the population into a number of categories or classes according to some factors and then taking cases at random from each category proportional to the number it contains.

samsara (Ind.) : transmigration, the relentless cycle of birth, death and rebirth depending on the balance of good and evil conduct or *Karma* of a previous life as believed in Hinduism, Buddhism and Jainism. This continual passage of the soul from body to body is infinitely tedious and terrifying and therefore, the natural desire for deliverance or *Moksha* from this bondage of endless rebirths.

Samuelson Report (Brit.) : a report (1884) of the Royal Commission appointed in 1881 under the chairmanship of Bernhard Samuelson on Technical Instruction. It advocated more craft work, more agriculture, more teaching of science and art in training colleges, more 'endowed' schools with modern curricula, and powers for local authorities to set up technical and secondary schools.

sangeet (Ind.) : [lit. music] The basic scale of Indian music is heptatonic. It has seven notes called *Sā, Rī, Gā, Mā, Pā, Dhā, Nī*, (all together known as '*Sargani*') corresponding approximately to those of the European major scale :

<i>Sā</i>	<i>Rī</i>	<i>Gā</i>	<i>Mā</i>	<i>Pā</i>	<i>Dhā</i>	<i>Nī</i>
C	D	E	F	G	A	B

These notes may be elaborated with half tones and quarter tones. In Indian music the notes are played in succession according to set patterns, lending a linear or melodic quality. It does not make use of harmony, counterpoint or choral singing as in western music. The *rāga* is an important element of Indian music.

It is a series of 5 or more notes for building a melody. The *tāla* or rhythmic figure is the next important element after *rāga*. The Indian musician is a great improviser who would select his own *rāga* and *tāla* and starting from a well known melody would build up a climax of complex ornamentation.

Sangeet Natak Akademi (Ind.) : see 'National Akademis'.

Sangha (Ind.) : [lit., a society] a Buddhist order of monks and laymen. Its tenets, called the *Dharma*, were enshrined in the various Buddhist scriptures.

sanghita (Ind.) : broadly the term is used for the final arrangement of a sacred text in the form of a compilation, but specifically it refers to the collection of *Vedic mantras*.

Sankhya (Ind.) : the earliest of the six orthodox schools of Hindu philosophy said to have been founded by the sage Kapila. It resembles Jainism for its rigid dualism and for not recognizing any personal creator. *Prākṛiti* (matter) and *Puruṣa* (spirit) are the two fundamental realities in a series of 25 basic principles (*tattva*) which constitute the process of evolution. *Prākṛiti* is the seed of all manifestations and is made up of three constituent principles or qualities (*guna*), viz., *sattva* (goodness), *rajas* (passion) and *tamas* (darkness). The *Sāṅkhya* system in combination with *Yoga* had a profound influence on Hindu philosophy and the doctrine of the *guna* affected many aspects of Indian life.

Sannyas (Ind.) : the last of the four stages into which the life of an individual was divided. (see 'āshrama'.)

Sanskrit (Ind.) : one of the greatest languages of the world through which the civilization of India since the Vedic period has found its expression for over 4 thousand years. In a broad sense of the term, it may be taken to include the entire linguistic development of the Aryan speech in India—the Vedic Sanskrit of the *Samhitās*, the Sanskrit of the *Brāhmanas* and *Upanishads*, the Sanskrit of the Epics, the Sanskrit of Pāṇini and Patanjali, the simple Sanskrit of the dramas, the ornate Sanskrit of the *Kāvya*s and so on. From this traditional view the spoken forms of the *Prākṛit* and the *Apabhramsa* were never considered as separate languages. In a specific sense, Sanskrit may be said to have started with the Early Sanskrit period, the period of the *Brāhmanas*, *Upanishads* and *Shutras* (700-400 B.C.) followed by the Classical Sanskrit period starting from about 400 B.C., when the great grammarian Pāṇini standardised the form of

the language. The name of the language as 'Sanskrit' was however, unknown even upto the time of Pāṇini. Kālidāsa may be one of the first to use the name for the language.

Sanskrit Commission (Ind.): a commission appointed by the Government of India in 1956 under the chairmanship of Dr. Suniti Kumar Chatterji to consider the question of the present state of Sanskrit education in all its aspects. The work was completed in 1957 and the report was submitted in 1958. The major recommendations included : (1) Sanskrit should be one of the 3 languages taught in secondary schools ; (2) The traditional Pāṭhśālā system should be preserved and revitalized by the introduction of some modern subjects like mother tongue, English, General Science and Social Studies ; (3) Greater facilities should be provided for Sanskrit research, and for the preservation and discovery of manuscripts ; (4) Sanskrit should be declared as an Additional Official Language ; (5) Devanāgarī should be accepted as the uniform script for Sanskrit, though local scripts for Sanskrit should be continued ; (6) Sanskrit universities should be set up in different areas, and the government should set up a Central Sanskrit Board and a Central Institute of Indology.

Sanskrit names and mottoes : Sanskrit is generally coming to the forefront in the national self-consciousness of India. "Bharata" is the Sanskrit name for India. The national motto of India is a Sanskrit quotation from the Upanishads—*Satya meva Jayate* (Truth alone triumphs). The National Anthem of India, *Jana-Gana-Mana* which was composed by Rabindranath Tagore is 90% Sanskrit. 'Sri' and 'Srimati' have been adopted as official forms of address. The motto of the Lok Sabha is *Dharma-chakra-pravartanaya* (For the promulgation of the Wheel of Law).

Sanskrit, promoters of : see 'promoters of Sanskrit'.

Santi parva (Ind.): [lit., peace section] the twelfth book of the *Mahābhārata* containing the coronation of Yudhishtira and Bhishma's long dissertation on statecraft and ethics as he lay dying on a pile of arrows.

Sardar Vallabhbhai Vidyapeeth (Ind.): a teaching and affiliating university founded in 1955 in Gujarat. The most important characteristic feature of the university is its rural setting. Its Act specifies Hindi as the medium of instruction.

Sargent Plan (Ind.): a plan of post-war educational development in India, submitted in 1944 by Sir John Sargent, the then Educational

Adviser to the Government of India. The Reconstruction Committee of the Governor-General's Executive Council asked the Central Advisory Board of Education to prepare a plan for the educational development to be taken up after the termination of war. The Board entrusted this work to Sir John Sargent. The memorandum which he submitted to the Board in 1944 is variously known as Scheme of Post-war Educational Development in India, Sargent Report, or Sargent Scheme. The Plan aimed at reorganising the system of education in India. The plan was to be carried out in 8 stages by means of eight five year plans. The plan provided for free compulsory and universal basic education for all children between the ages of 6 and 14.

Satavahanas, education under the (Ind.): ruled from 1st century B.C. to the middle of the 3rd century A.D. The Satavāhana dynasty was in the regions of the Godavari and Krishna. The Satavāhana kings patronised Prākṛit. A Prākṛit anthology called the *Sattasai* (*Sapta-sataka*) is said to have been written by Hala, a king of this dynasty. Guṇadhya is said to have written his original *Bṛihat-kathā* in Prākṛit.

Sattva (Ind.): [lit., goodness] one of the *gunas* or constituent principles of *Prakṛiti*. It is the attribute of purity, brightness, intelligence and reality and is associated with white colour. It resides in the mind and generates noble qualities and virtues, goodness and joy. It is inherent in milk, ghee, curds, wheat, fruits and vegetables and is the attribute of wise, intelligent, strong middle sized, noble and pure-minded men.

Satyam eva Jayate (Ind.): [lit., 'Truth alone triumphs'] a great saying from the *Mundaka Upanishad*. It has become a motto on the Government of India official crest.

Saṃskṛita-parva (Ind.): [lit., nocturnal section] the tenth book of the *Mahābhārata* containing the night attack on the Pāṇḍava camp by the three surviving Kauravas and the death of Duryodhana.

saving method : a method of measuring strength of retention from the difference between the number of trials or errors originally required to learn and the number required in relearning.

scale : a measuring device for determining the magnitude or quantity of anything. Sometimes the work of a candidate is assessed by means of literary symbols, e.g., A, B, C, D, E (the five point scale). Scale may also stand for a series of tests for measuring mental development like Binet-Simon Scale. In a different

- context the term is used for a graduated scheme of payment of salary indicating increments to be periodically paid.
- scale, Alexander performance : see 'Alexander performance scale'.
- scale, Binet-Simon : see 'Binet-Simon scale'.
- scale-discrimination technique : an attitude scaling technique developed by Edwards and Kilpatrick, having the advantages of equal-appearing intervals, summated ratings, and the cumulative scale.
- scale, Healy and Fernald : see 'Healy and Fernald scale'.
- scale, ordinal : see 'ordinal scale'.
- scale, posture : silhouettes of standing posture arranged in a graded order for the purpose of rating the posture of an individual.
- scale, rating : see 'rating scale'.
- scale, social-development : a scale indicating the appearance of special social traits at different age norms for measuring the social development of a child.
- scale, social distance : see 'social distance scale'.
- scale, spelling : a list of words arranged in order of spelling difficulty, which can be used in spelling tests.
- scale, stanine : see 'stanine scale'.
- scale, standing : see 'standing scale'.
- scale, test rating : see 'test rating scale'.
- sealed test : a test in which the items or questions are arranged in an order of increasing difficulty.
- scatter diagram : a table or chart used for plotting the scores made by the same individuals on two different tests or variables, thus visually representing the degree of correlation between the two variables.
- schedule, daily : a chart or plan of the school which shows the day-to-day activities of the school, the arrangement of class-groups and the co-curricular activities. The daily schedule of an elementary school is relatively simple since the pupils are usually in the same room and generally under the direction of same teachers, the daily schedule of the higher secondary school or high school is more complex and difficult to prepare in view of a number of classes and subjects and the need for proper utilization of teachers.
- schematic stage : the stage of child's development in drawing when he draws on the basis of what he knows rather than what he actually sees.
- schematograph : a device for tracing the outline of a person in a reduced form for recording and studying his posture.
- seliceme, triple-benefit : see 'triple-benefit scheme'.
- schizoid personality : see 'personality schizoid'.
- schizophrenia : a psychotic disorder characterized by failure to correctly judge external reality and marked by excessive feeling and overt behavioural disturbances.
- Scholasticism : a system of philosophy which harmonizes Christianity with Greek philosophy, Christian supernaturalism with Aristotelian realism. It reached its highest point in the works of St. Thomas Aquinas in the 13th Century.
- scholastic test : see 'test, scholastic'.
- school, bilateral (*Brit.*) : see 'bilateral school'.
- school, bilingual (*Can.*) : see 'bilingual school'.
- school, continuation : see 'continuation school'.
- school, convent : see 'convent school'.
- school, cooperative : see 'cooperative school'.
- school, dame : see 'dame school'.
- school, demonstration : see 'demonstration school'.
- school, direct grant (*Brit.*) : see 'direct grant school'.
- school, double shift : see 'double shift school'.
- school, experimental : see 'experimental school'.
- school, grammar : see 'grammar school'.
- school, junior high (*Can.*) : see 'junior high school'.
- school, laboratory : see 'laboratory school'.
- school, middle : see 'middle school'.
- school, modern : see 'modern school'.
- school, monastic : see 'monastic school'.
- school, nursery : see 'nursery school'.
- school, one-teacher : see 'one-teacher school'.
- school, open-air : see 'open-air school'.
- school, orthopedic : see 'orthopedic school'.
- school, pagan : see 'pagan school'.
- school, palace : see 'palace school'.
- school, parish : see 'parish school'.
- school, parochial : see 'parochial school'.
- school, peripatetic : see 'peripatetic school'.
- school, positive : see 'positive school'.
- school, practice : see 'practice school'.
- school, preparatory : see 'preparatory school'.
- school, private : see 'private school'.
- school recess : see 'recess, school'.
- Schools, Sainik (*Ind.*) : see 'Sainik Schools'.
- school, socialized : see 'socialized school'.
- school, summer : see 'summer school'.
- School, Summer Hill : see 'Summer Hill School'.
- school, Sunday : see 'Sunday school'.
- school, ungraded : see 'ungraded school'.
- school area : an actual area well demarcated ; or an 'area' of population served by a school.
- school board (*U.S.A.*) : board of education, i.e., the governing body created by the State but

generally popularly elected at the level of the town, township, county or city, and is vested with the responsibility of conducting the local public education system. The policy making for the board involves personnel, curriculum, instructional materials, transportation, cafeterias, expenditures, budget, etc. A superintendent is employed to act as the board's executive officer who recommends policies to the board but must carry out the policies adopted by the board.

School Boy, The : a poem by Oliver Wendell Holmes including a description of the nineteenth century teacher :

'Grave is the Master's look; his forehead wears
Thick rows of wrinkles, prints of worrying
cares ;

Uneasy lie the heads of all that rule,
His most of all whose kingdom is a school.
Supreme he sits ; before the awful frown
That bends his brows the boldest eye goes down;
Not more submissive Israel heard and saw
At Sinai's foot the Giver of the Law.'

school broadcast : see 'broadcast, school'.

school building : see 'building, school'.

school camp : see 'camp, school'.

school complex : a small group of schools working in a neighbourhood to make a cooperative effort to improve standards. For instance, there may be one secondary school, about five higher primary schools and about 30 lower primary schools in one particular rural area. Each higher primary school may be integrally related to five or six (as the case may be) lower primary schools that exist in the neighbourhood so that they form one 'complex' of educational facilities. Another complex could be formed by constituting a committee under the chairmanship of the headmaster or the principal of the secondary school. The committee will comprise all the headmasters of the higher and lower primary schools in the neighbourhood and will plan the work and provide guidance to all the schools in the area. The programme will be so arranged that the library, the laboratory and the other educational facilities available in the secondary school will be put at the disposal of the schools situated in the 'complex'.

school construction, Unesco and : see 'Unesco and school construction'.

school cooperative : see 'cooperative, school'.

school counsellor : a wholetime member of the school staff who provides assistance to students and looks after the guidance activities of that school.

school credits : see 'credits, school'.

school education, Unesco and : see 'Unesco and school education'.

school excursion : journey or a trip organized by a school for educational purposes. It is the most concrete audio-visual aid, as the students are brought out of the school for exposing them to sensory experiences with people, places, things, and processes which cannot be made available in the classroom. They are face to face with reality and life. School excursions can be arranged in various forms which may extend from one class period to several days. It may include just a collection of different types of leaves in a neighbouring garden or an educational trip to a distant State or country. Excursions provide wide and varied experience, give first hand knowledge and information, correlate school work, strengthen previous learning, bridge the gap between the school and the world outside, promote understanding among different people of different places, and afford opportunity for learning courtesy and co-operation. The purpose of an excursion will be defeated unless its planning includes adequate preparation, clear objectives, previous discussion, planned procedure for student activity during the visit, and proper follow-up work. (syn. 'school journey' and 'school trip'.)

school journey : a trip undertaken by a school for educational purposes so that the students get an opportunity of directly observing instructional material in their functional setting, like a visit to a factory or zoo. (also see 'school excursion'.)

school library : see 'library, school'.

school magazine : see 'magazine, school'.

School Mathematics Study Group : (abbreviated to SMSG) a group of university and school mathematics teachers working to develop an improved mathematics course involving grades three to six. The group started its work at Yale University in 1958 under a grant from the National Science Foundation and under the direction of E.G. Begle, formerly of Yale and now at Stanford University. The experimental programme involves the use of a deductive approach to reasoning to arrive at an understanding of number properties and techniques, and is designed to help the children, to think critically and use problem-solving techniques. The SMSG has published a large amount of material for the use of teachers, besides the textbooks for students.

school morale : the prevailing temper or spirit of the students to act with unity and confidence, usually for the good of the school ; the

dominant group attitudes helping the school to act with unity.

school museum : see 'museum'.

school norms : tables of percentile ranks constructed on the mean test scores of pupils in different schools.

school of the air : name assigned to a number of planned series of radio programmes intended to supplement classroom instruction.

school organization : see 'organization, school'.

school term : a sub-division of the school year having a well planned unit of studies and co-curricular activities often ending with an evaluation of the work done.

School Textbooks, Report of the Committee on : see 'Report of the Committee on School Textbooks (1969)'.

school trip : see 'school excursion' and 'school journey'.

sciences, behavioural : see 'behavioural sciences'.

science, consumer (*U.S.A.*) : science which is needed by the consumer for repairing simple household equipment, preservation of food and clothing, purification of water supply, etc.

science, domestic : a term, now obsolete, used for that aspect of home economics which dealt with the selection and preparation of food.

science, general : an orientation course drawn from physical and biological sciences for the use of junior classes prior to specialization.

science, physical : science dealing with matter and its properties as represented by physics, chemistry, geology, astronomy, etc.

science, research on teaching : The research on science teaching in relation to pupil behaviour is relatively meagre. Most of the research involving pupil behaviour has emphasized on gains in score on achievement tests of limited scope, while the affective influence or emotional impacts of teaching and learning are neglected. Attention has been paid to laboratory work, programmed instruction and the use of films and television in the teaching of science. Most of the studies involving descriptive ratings of science teacher behaviours do not have much reliability and have no significant correlation with pupil behaviour. It is suggested that the entire field of teacher behaviour has to be examined on a different basis, since the personality traits of teachers of science, as well as teachers in general, take precedence over instructional techniques. Among the workers engaged in studies, investigations and research during the last two decades, the following names may be mentioned : Lee (1961), Anderson (1950), Ryans

(1960), Cogan (1958), Reed (1961), Kahn (1962), Boeck (1956), Atkin (1958), Lahti (1956), Kruglak (1951-1955, 1958), Brown (1958).

science in ancient India : It goes back to the Indus Valley Civilization, about 5 thousand years ago, when people were familiar with mining and metal-work, simple architecture, manufacturing of gypsum cement and permanent paints. Vedic science included the elements of astronomy, mathematics, chemistry and biology. At the time of the Buddha (5th century B.C.) the universe was classified by the elements which were atomic. It was believed that all atoms (*anu*) were identical, eternal and had no qualities but potentialities. The *Vaisheshika* school specially elaborated atomic doctrines based not so much on experiment as on logic and intuition. India made real experiments and discoveries in the field of sound and musical systems. Iron Pillar of Delhi is a tribute to the ancient knowledge of metallurgy. Chemistry was used for making a large number of medicines and drugs to promote longevity. All this knowledge was codified in numerous Sanskrit works.

sciences, natural : see 'natural sciences'.

Science Talent Search Scheme, National (*Ind.*) : see 'National Science Talent Search Scheme'.

science teaching by films and television, research on : There have been several studies comparing the achievement test scores of students exposed to film and television instruction and those taught entirely by live teachers. The studies in Cincinnati and Kansas indicate no outstanding difference in favour of either form of presentation, though results of Wisconsin and Chicago studies show that the students in a face-to-face relationship with a teacher perform better. It has also been found from the Wisconsin study that students taught directly by teachers had a higher interest in science than those learning from vicarious instructors. Popham and Sadnavitch reached similar results. It is true that these few studies are not enough to draw final conclusions, but they increase the doubt that vicarious instruction is no better than direct teaching.

Scientific and Industrial Research, Council of (*Ind.*) : see 'Council of Scientific and Industrial Research'.

Scientific Committee, Indian Parliamentary and : see 'Indian Parliamentary and Scientific Committee'.

scientific movement in education : a movement originated by J.M. Rice in the United States in about 1900 for attempting to apply scientific

methods to the problems of education such as curriculum development.

scorability : the characteristics of a test that make for ease and simplicity in scoring it.

score : a quantitative description of performance often in terms of questions or items answered correctly.

score, composite : see 'composite score'.

score, standard : see 'standard score'.

score card : a short and simple type of rating scale used in the evaluation of the work of the pupils.

score deviation : the number of score units by which a certain score in a frequency distribution differs from the mean or the assumed mean.

scores, comparable : see 'comparable measures'.

Scottish Council for Research in Education (Brit.) : a council founded in 1927 to encourage and organize research in the various fields of education in Scotland. A similar body, the 'National Foundation for Educational Research in England and Wales' was set up for the rest of Great Britain 18 years after the foundation of the Scottish Council.

Scottish Education Department (Brit.) : the authority responsible for the administration of education in Scotland. The department is headed by the Secretary of State for Scotland. The Scottish educational system is separate from that of England and Wales, and has a separate staff of civil servants and a corps of inspectors (H.M.I.'s).

scout, boy : a member of an organization for boys founded by Baden-Powell in England in 1908 for promoting good citizenship by a programme of manifold activities.

scouting in India, history of : The Boy Scouts Association of India meant for European and Anglo-Indian boys was founded in 1909, as a branch of the mother association in England. This caused resentment and resulted in the founding of Indian Boy Scouts' Association in Madras in 1916 and Seva Samiti Boy Scouts' Association in Allahabad in 1918. Baden-Powell toured the country in 1921, and as a result of his advice the Indian Boy Scouts' Association was merged with the Boy Scouts' Association of U.K., while the Seva Samiti Boy Scouts' Association retained its separate entity. The years between 1921 and 1938 saw the growth of a number of scout organizations which were gradually amalgamated, so that in 1938 there were only 3 organizations : (1) the Boy Scouts' Association of India ; (2) the Girl Guides' Association of India ; (3) the Hindustan Scout Association (the new name for Seva Samiti

Boy Scouts' Association). After the Independence steps were taken to merge the three into a unified organization responsible for the conduct and growth of the movement throughout the country. It is the only internationally recognized Scouts and Guides Association in India, and is non-official, non-political and non-communal in character.

scrap book : an educative device to encourage the students to look for illustrative material pertinent to the subject being studied. It consists of a collection of pictures, maps, cartoons, graphs, etc. cut from magazines or other sources and mounted in some kind of bound or loose-leaf note-books, usually in an organized manner corresponding to the school work.

scribe : a person who did clerical work, taught or explained the law in ancient Egypt and Babylonia.

scriptorium : a writing room in a monastery of the early Middle Ages where monks or nuns used to copy manuscripts.

script, phonetic : see 'phonetic script'.

scripts, history of Indian : About five thousand years ago the people of Harappa Culture had a script which has not yet been deciphered. From the fall of Harappa to the 3rd century B.C., no Indian script has survived. There was a general prohibition against setting the Vedas and other sacred texts to writing as they were passed on from generation to generation by word of mouth. The Ashokan inscriptions and edicts, the earliest important written documents, employed two scripts—*Brāhmī* and *Kharoshthī*, the former was extensively used throughout India except in the North-west where *Kharoshthī* was used. *Brāhmī* is the precursor of the modern Indian alphabetic forms. The distinct types that developed from *Brāhmī* script are : *Kushāna* script ; *Gupta* script ; *Harsha* script ; *Devanāgarī* (or *Nāgarī*), *Sāradā* (about 800 A.D.) ; *Kutīla* (end of eleventh century) from which evolved Bengali, Maithili, Oriya, Gujarati and Nepali ; and *Grantha* from which evolved Tamil, Telugu, Kanarese and Malayalam. (Also see *Devanāgarī*.)

sculpture, history of Indian : Indian sculpture begins with the Indus Valley Civilization, about 5 thousand years old. The next phase was ushered in by the Mauryan period, in the 3rd century B.C. reaching its culmination at the time of Ashoka, as represented by the lions of the Sarnāth capitol, the bull of Rāmpurva column and the figures of *Yakshas* and *Yakshinis*. The carvings on the gateways and stone railings of Buddhist stupas of Bharhut, Sānchi and Amrāvati are finest examples of sculpture between

Ashoka and the Gupta period. The Kushana period (2nd century B.C. to 2nd century A.D.) founded the Gandhara School notable for the Græco-Buddhist form of art. After Gandhara, the school of Mathura flourished when Buddha image was given typically Indian features. Under Gupta period (320-490) the Mathura school reached its culmination producing masterpieces of sublime and superb figures of Buddha as in Sārṇāth. The best examples of the sculptural art of the Pallavas (400-850) are found at Māmallapuram; of the Chālukyas (500-800) at Badami; of the Chandellas (800-1204) at Khajuraho; of Orissa (9th and 10th centuries) at Konark and Bhuvaneshwar.

seating chart, classroom : a diagram showing the location of each student's seat with his name.

seating equipment, movable : seats and desks so designed that they can be easily moved from one place to the other.

seating equipment, stationary : older type of seating equipment fixed to the ground so that it cannot be moved.

seating plan, diagonal : a method of placing the seats and desks in rows diagonally across the room so that light from the windows falls on each pupil's left shoulder.

Second All-India Educational Survey : see 'Survey, Second All-India Educational'.

secondary education : the second stage in the system of public education usually beginning with class 5 or 6 and ending in class 10 of a high school or 11 of a higher secondary school during which education is differentiated in varying degree according to the needs, interests, and aptitudes of the pupils.

secondary education (1854-1902) (Ind.) : With the creation of the Departments of Public Instructions in 1855-56, as a result of the Despatch of 1854, an era of rapid multiplication of secondary schools set in. The Despatch of 1854 had laid great stress on the system of grant-in-aid which encouraged the Indians to open secondary schools. The taste for English education increased rapidly. Indian Education Commission, 1882, recommended that secondary education should, as far as possible, be provided on the grant-in-aid basis and government should withdraw as early as possible from the direct management of secondary schools. The number of students was more than doubled in the twenty years between 1882 and 1902.

secondary education (1902-1921) (Ind.) : This period witnessed an unprecedented expansion in secondary education which was achieved

primarily through private Indian enterprise. Social and political awakening in the country also contributed to this expansion. The number of secondary schools rose to 7,530 with 11,06,803 pupils in 1921-22 as against 5,124 schools with 5,90,129 pupils in 1905. Attempts made at introducing vocational courses often became unpopular. The study of English became very popular. English was used as the medium at the high school stage.

secondary education (1921-1937) (Ind.) : The number of recognised schools increased from 7,530 with 11,06,803 students in 1921-22 to 13,056 with 22,87,872 students in 1936-37. Modern Indian languages began to be adopted as medium of instruction on a large scale. Greater attention came to be paid to the salaries and conditions of services of teachers in primary schools. The problem of providing vocational education at the secondary stage became very important and complicated.

secondary education (1937-1947) (Ind.) : Expansion of secondary education fell short of the one seen in earlier periods. Mother-tongue became the medium of instruction at the secondary stage. The progress for the provision of vocational courses was slow. The number of training colleges for secondary teachers was considerably increased.

secondary education (after 1947) (Ind.) : Secondary education in India is being considered to be the weakest stage in Indian education. The Secondary Education Commission appointed in 1952 under the chairmanship of Dr. A.L. Mudaliar submitted its report in 1953. An All India Council of Secondary Education was established in 1955 for evolving a programme of improvement. The National Council of Educational Research and Training was established as an autonomous body in September 1961 to develop programmes of high level research and training, and extension and improvement in school education. A crash programme for the improvement of science education was initiated in 1964-1965. State units of science education have been established in many States. State evaluation units have been established in all the States except Madras and Nagaland for carrying out reforms in the examination and evaluation system. Bureaux of educational and vocational guidance have been established in almost all States. In order to improve the quality of textbooks almost all the State governments have nationalised the production of text-books. As against 5.2 per cent of the population in the age group 14-17 in 1950-51, the estimated figure is 17.8% in 1965-66.

Secondary Education, Central Board of (Ind.) : see 'Central Board of Secondary Education'.

Secondary Education, Commission on Reorganization of (U.S.A.) : a commission appointed by the National Education Association in 1913 to collect the best opinion in regard to the aims and methods that should prevail in secondary education. Among the several reports made by the commission which appeared as U.S. Bulletins from 1913 to 1922, the most frequently cited is the 'Cardinal Principles of Secondary Education, 1918'. It called for a reformation in secondary education to meet the needs of a dynamic society. The seven areas covered are : health, fundamental processes, family, vocational education, civic education, worthy use of leisure and ethical character. It provided a new orientation towards a 'complete living'.

Secondary Education Commission (Ind.) : a commission appointed by the Government of India in 1952 under the chairmanship of Dr. A. Lakshmanaswami Mudaliar to enquire into and report on the position of secondary education in all its aspects and suggest measures for its reorganization and improvement. The commission submitted its report in 1953. Important recommendations of the commission's report (1953) were : (1) The higher secondary stage should cover a period of 4 years ; (2) Multipurpose schools should be established ; (3) Diversified courses should be introduced in schools ; (4) A high power textbook committee should be introduced ; (5) Objective tests should be introduced ; (6) Guidance and counselling should find an important place ; (7) There should be one public examination at the end of the secondary course. The commission is sometimes referred to as 'Mudaliar Commission'.

Secondary School Curriculum, Commission on (U.S.A.) : a commission set up by the Progressive Education Association in 1932 to find out how well the present curriculum met the needs of youth and to conduct experimentation in curriculum revision. The commission approached the problem by a study of adolescents and their problems, and a study of each of the major subject areas. The commission suggested that any reorganization should be based on the needs of youth, that the concept of the democratic way of life should direct the curriculum goals, and that the broad subject areas like science, social studies, etc., should be included in the curriculum.

secondary sex characteristics : refer to the masculine and feminine growth which depends on

the hormones of the male or female gonads but not necessary to the reproductive function ; e.g., the greater amount of facial hair in males and development of breasts in females.

Second Five Year Plan on Education (Ind.) : see 'Plan on Education, Second Five Year'.

secularization : the absence of religious control over the schools or religious contents in the curriculum.

seer [rishi] (Ind.) : see 'rishi' and 'muni'.

selection, teacher : see 'teacher selection'.

selective admission : see 'admission, selective'.

selective perception : see 'perception, selective'.

self : the individual as he sees himself. According to social psychologists, the self is the product of social interaction.

self-abasement : extreme submission to another accompanied with strong feelings of inferiority. It is usually at work when a child is in the presence of his teacher, or any superior person with authority. Used with caution, it becomes very useful in making the child obedient and orderly. Care must be taken that it is not used to create fear in the mind of the child.

self-defence activities : see 'activities, self-defence'.

self-discipline : commonly, control on one's own self ; positively, the determined effort to cultivate good qualities, abilities, skills and responsibilities within oneself.

self-education : any effort purposefully made by an individual for improving his knowledge, skill, attitude or ideal. It is self-instituted and self-motivated with a definite educational purpose in view. Visits to museums, art galleries and exhibitions, attendance in lectures, purposeful reading, and pursuing correspondence courses are among the several ways of self-education.

self-government : pupils' participation in the class organization or school government. Participation may vary in degree of government and types of work handled, but there is hardly any school where pupils are entirely self-governing. In a school self-government, every student is a member of a student body which has been delegated with some powers by the head of the school. Such a body plays an important role in the conduct of extra-curricular activities. Student participation in self-government has educational values, particularly in the training of citizenship, developing leadership qualities and providing insight into democratic processes. Such a participation is not exclusively devoid of dangers when the source and the limits of student's authority are lost sight of.

self-image : see 'image'.

self marking test : a test that does not require the use of scoring keys or machines in the scoring process.

sentiment, master : see 'master sentiment'.

self-motivation : an urge for action emerging from one's own will rather than from the environment.

semantic-differential rating instrument : a technique developed by Osgood for measuring the connotative meaning of concepts by getting ratings on a number of bipolar adjective scales.

semantics : the study of the meaning of words and sounds.

semester : half of an academic year, usually 16 to 18 weeks.

seminar, educational : probably 1870's saw the beginning of seminars in higher education in America with the advent of graduate study and research. Its primary purpose is to provide intimate discussion.

senate : the supreme governing body of a university, which makes statutes according to the provisions of the University Act and controls the purse of the university.

sense training : developing sensory discrimination through sensory experiences. Sense training offers adequate opportunity to make finer discriminations regarding shape, size, weight, sound, colour, distance, touch, etc. Verbal learning without direct sensory experience is meaningless to young children. In the physically handicapped pupils the deficiency in one sense is compensated to a reasonable measure by training in another sense. The deaf uses the visual cues of lip-movements to understand speech and the blind uses the touch cues to read the braille. For centuries education was concerned with words. Bacon's stress on inductive study, Pestalozzi's emphasis on object-teaching, Herbart's concern with sensory perception, Dewey's advocacy of experience as the basis of learning, and Montessori's method of using sense training material helped observation and sense perception to take hold in educational practice.

sense training material : a large amount of sense training material developed by Maria Montessori who believed in training the senses one at a time. The material consisted of inserts of various shapes, wooden cylinders and cubes of different sizes used for developing visual perception, tablets of wood similar in size but differing in weights for basic sense, graded series of coloured wool or silk for perception of colour, vessels of water heated to varying temperatures for dipping fingers for thermic sense, rough,

smooth and intermediate type of surfaces for tactile sense, cylindrical sound boxes containing different substances for auditory sense, etc.

sentence method : the reading method in which sentence is the unit and not the word, phrase or letter

separate school (Can.) : an elementary school for the minority in a school area where difference in language, religion or race exists among the residents.

sequential comparison : comparative analysis of objects according to some pre-determined order of events.

Serampore Trio (Ind.) : the three Christian missionaries Dr. Carey, Ward and Marshman settled at the Dutch settlement of Serampore during the third quarter of the eighteenth century, who conducted several schools for boys and girls. They also translated Bible in several languages.

services, extension : see 'extension services'.

set, mental : see 'mental set'.

seven liberal arts : see 'liberal arts, seven'.

sex education : the education concerning knowledge about sex and its related problems. It is a controversial subject whether sex education can be included in the school or college programme. The educators who are inclined to include sex education feel that it should be concerned with the physical, emotional, social and moral development of the individual. It should sympathetically answer questions that the children ask about matters of sex, help the wholesome acceptance of sex in the wider perspective of life, and teach the children to adhere to standard of restraints demanded by the society. The necessity for imparting sex education is being highlighted by the following conditions : (1) freer position and freedom of movement ; (2) lesser possibilities for checking or surveillance ; (3) development of contraceptives and prophylactics ; (4) increased sex stimuli in cinemas, advertisements, magazines and songs ; (5) difference of opinions in matters of conduct.

s-factors : the term used for specific factors in Spearman's two-factor theory.

Shad-darshana (Ind.) : [lit., six philosophies] the six orthodox schools of Hindu philosophy, namely, *Nyāya*, *Vaisheshika*, *Sāṅkhya*, *Yoga*, *Mīmāṃsā*, and *Vedānta*. These six schools were actually of differing origin and purpose but all aimed at salvation, and all believed in rebirth and pre-existence. These six were divided into three groups of two which were considered related and complementary :

Nyāya and *Vaisheshika*; *Sāṅkhya* and *Yoga*; and *Mīmāṃsā* and *Vedānta*. (also see 'Nyāya', 'Vaisheshika', 'Sāṅkhya', 'Yoga', 'Mīmāṃsā' and 'Vedānta'.)

Shahjahan, education under (Ind.): ruled 1628-1659. He is better known for the magnificent superb structures which beautified Delhi and Agra than for his zeal for the promotion of learning. He, however, saw to the uninterrupted continuance of the educational activities and institutions started during the reigns of his predecessors, and he himself made a distinct contribution by founding an Imperial College at Delhi. Shahjahan was a great patron of music and he also encouraged painting. In his reign learned men were encouraged through rewards and stipends. He ordered the writing of the well-known historical work called *Pādshāh-Nāmāh*.

Shalakariksha (Ind.): [lit., needle-examination] (see 'Mithila'.)

Shankaracharya: the great Vedantic philosopher from *Mālābar* (Kerala). He stood for extreme and uncompromising monism and his doctrine is often known as *Advaita*. His creed is summed up in the Upanishadic saying '*Ekam evādritiyan*' (one essence and no other). The real is *Brahma*, all plurality and differences are illusory. His greatness lies in his brilliant dialectic which helped him to reduce all the seemingly self-contradictory passages of the *upanishads* to a consistent system. The goal of his philosophy is to become one with God by resolving the illusive separateness of self.

Shantam shivam advaitam (Ind.): [lit., 'The tranquil, the blissful, the undivided'] a great saying from the *Māndukya Upanishad*. It is the motto for *Vishva Bhārati* founded by Rabindranath Tagore.

Shir Shahi, education under (Ind.): ruled 1539-1545. As a soldier under the Governor of Jaunpur he devoted most of his time to history, poetry and biographies and got by heart the contents of several books. When he became a ruler he used to put questions from books of history to learned men who came asking for a maintenance grant. He built a big college at *Narnaul* near *Hissar*. His son had also love of learning and could compose extempore verses.

shiksha (Ind.): [derived from the root word 'shiksh', lit., to give] knowledge of the correct pronunciation and recitation of the Vedic texts; education. In the Vedic age, *Shikshā* was one of the six subsidiary studies which helped the proper study of the *Rigveda*. *Sāyana* defined it as the science of the pronunciation

of letters, accents and the like. Through the knowledge of *Shikshā*, ancient dialectical differences created by the freedom of a spoken language were preserved and a start was given to the scientific study of the language. Education in the Vedic period consisted of learning to recite the holy texts, and the duty of the guru was to give the *Veda* to his pupil by uttering it. In modern usage, the word *shikshā* means education, learning or study; and *shikshak* means a teacher.

shilpas, eighteen (Ind.): [lit., *shilpa*=crafts] *shilpas* connote profession requiring special skills. In the Vedic age arts like vocal music, instrumental music and dancing were considered as *shilpas*. The *Taxila University* claimed to specialize in 18 *shilpas*. The following may probably be counted as the 18 *shilpas*: vocal music, instrumental music, dancing, painting, sculpture, archery and military art, magic, snake charming and poison antidotes, medicine, mathematics, accountancy, commerce, engineering, agriculture, cattle-breeding, art of finding hidden treasures, law, and administrative training. (In Pāli language '*shilpa*' is called '*sippa*'.)

Shivaji, education under (Ind.): ruled 1647-1680. The 'Dakshinā' system of encouraging learning found strong support with Shivaji. It was an old edition of the modern system of payment by results. Grants in money or in land used to be made to famous scholars irrespective of their caste or creed. Teachers taught pupils in their own homes and both teacher and pupil were placed above want by means of a judicious distribution of annual rewards. This period saw the rise of the vernacular languages. Eknath and Ramdas, Namdev and Tukaram, Vaman Pandit and Mukteswar, Shridar and Moropant were the celebrated authors, poets and religious teachers who addressed the people both in speech and writing in their own vernacular. However, Sanskrit was also encouraged.

shock therapy: a treatment of mentally ill persons by inducing shock through some agent causing convulsion or coma. Such agents include drugs like insulin and banzadrine and passing of an electric current through the brain.

shop work: the instructional work performed in school shops. Shop work may be general and pre-vocational or on a vocational basis. Pre-vocational shop work may commonly include metal work, wood work, electrical work and printing, while vocational shop work may vary from machine shop practice and auto mechanics

to air conditioning, metallurgy, textile weaving.
short-essay test : see 'test, short-essay'.

short-exposure apparatus : apparatus like Tachistoscope, Flashmeter or Metronoscope used for brief exposure of letters, words and phrases for reading purposes.

Shruti (Ind.) : [lit., that which was heard] the divine knowledge of the sacred texts of the *Vedas* is believed to have been revealed to the sages or *rishis* of old. In other words, the *Vedas* were 'heard' by the *rishis* and, therefore, they are known as '*Shruti*'.

shulva-sutra (Ind.) : [lit., cord verses] the oldest work on Indian mathematics which supplement ritual canon. These 'cord verses' involve the construction of altars and sacrificial places by the aid of measuring cords. The geometrical portions of these sutras have some mark of similarity with the work of the Greeks. About nine centuries after the *shulva-sutra*, the name of Aryabhata (476 A.D.—520 A.D.), the first great Indian mathematician, appears.

Shūtra (Ind.) : term used for the last of the Vedic literary period from 500 B.C. to 100 B.C. The exuberant growth of literature of the earlier period ran a risk of losing the substance and spirit of religion in a bewildering mass of details and discussion, and, therefore, arose the need of utmost brevity, of condensing the vast material in the smallest compass through aphoristic, pithy and mnemonic style of writing, called the *shūtra* style. The verbal economy is sometimes carried so far that it would become difficult to understand without a commentary. Four classes of Shūtra literature may be recognized : (1) *Srauta Shūtra*, extension of the *Brāhmanas* on the ritual side ; (2) *Grihya Shūtra* regarding ceremonies carried out in domestic life ; (3) *Dharma Shūtra* regarding customs of daily life ; (4) *Sulva Shūtra* regarding religious practices.

Shvetāśvatara Upanishad (Ind.) : One of the *Yajur-Vedic Upanishads* so named as it is related to *Shvetāśvatara* school. It is the root of *Yoga*. It is one of the basic texts of *Shaivism*.

shibilant : a consonant marked by a hissing sound, as in the case of s, z, sh and zh.

sibling rivalry : a feeling of jealousy between children of the same parents. Reduction and shifting of attention with the arrival of the new babe, unfavourable comparisons frequently made between two brothers or sisters, or showing favouritism may give rise to sibling rivalry creating subsequent behavioural problems.

siddhi (Ind.) : a term used for the attainment of supernatural or psychic powers by an individual by means of *āsana*, *prāṇāyāma*, concentration, *mantras* and drugs. Eight great *siddhis* popularly known are : (1) *Ānimā*, power of becoming infinitely small ; (2) *Mahimā*, power of becoming infinitely vast ; (3) *Laghimā*, power of becoming so light that one can move about with great speed ; (4) *Garimā*, power of becoming so heavy that one cannot be moved ; (5) *Prākāmya*, power of obtaining anything by mere willing ; (6) *Prāpti*, power of being transported anywhere ; (7) *Vashitva*, power to control all things ; (8) *Ishitva*, power to rule over all things.

sight saving equipment : see 'equipment, sight saving'.

sigma score : any derived score on a test or other measuring device expressed in terms of the mean and standard deviation of the distribution of score, made on the test or other measuring device.

significance, statistical : the property of having low probability of occurrence in an infinite series of measurement of the kind in question on the basis of chance alone.

significant difference : see 'difference, significant'.

silent reading : reading in silence, an exercise meant (1) to focus attention and thought rather than the mechanics of reading and (2) to develop a more rapid rate of reading than what is ordinarily achieved through oral reading. Silent reading is a supplement to oral reading. It is of secondary importance in the primary stage where much energy and attention are involved in translating visual symbols into sounds. In the secondary stage silent reading holds great value where speed and comprehension, that is quick and accurate thought getting is the main aim.

Simla Educational Conference (1901) (Ind.) : a conference in which Lord Curzon invited all the Provincial Directors of Public Instruction and a few missionaries to discuss educational reforms. No Indian was invited and the proceedings of the conference were kept confidential. The conference sat for 15 days and passed 150 resolutions that formed the basis for educational reforms.

simple recall test : see 'test, simple recall'.

single salary schedule : see 'salary schedule, single'.

single teacher per grade plan : a school with one teacher for each class or group, so that each student studies under only one teacher throughout the school day.

sitting height : the height measured from the surface on which the pupil is sitting erect to the top of his head.

situational test : a test in which the tester observes an individual's reaction to a situation where he is submitted to a stimuli aimed at eliciting the kind of behaviour the tester wishes to observe. The situation must pose a real problem to be solved. The observer records the method of performance of the testee, emotional content and the amount achieved. The testee is not aware that he is being tested for a particular purpose.

situational therapy : treatment of a personality problem by altering the environmental conditions. Change of residence, street or school may bring about conditions conducive to adjustment.

six-four-four plan (U.S.A.) : the administrative division of a school programme of 14 classes or grades into an elementary school of 6 years (excluding kindergarten), a middle school of 4 years and an upper secondary school of 4 years (including 2 junior-college years).

six-four-two plan (U.S.A.) : the administrative division of a school programme of 12 classes or grades into an elementary school of 6 years (excluding kindergarten), a junior high school of 4 years and a senior high school of 2 years.

six-six plan (U.S.A.) : the administrative division of a school programme of 12 classes or grades into an elementary school of 6 years (excluding kindergarten), and a secondary school of 6 years organized as a junior-senior high school or 6-year high school.

sixteen-millimetre film : see 'film, sixteen millimetre'.

sixth form (Brit.) : the highest class in a grammar school or public school mostly consisting of young people of 16 or 17 years of age who are often given important responsibilities in the school organization. Sixth form is sometimes divided on the basis of subjects as 'Classical Sixth', 'Modern Sixth', 'Science Sixth'.

six-three-three plan (U.S.A.) : the administrative division of a school programme of 12 classes or grades into an elementary school of 6 years (excluding kindergarten), a junior high school of 3 years and a senior high school of 3 years.

six year elementary school : see 'elementary school, six year'.

skewness : the degree or extent to which a frequency distribution or event departs from a symmetrical shape.

skill, behavioural : see 'behavioural skill'.

skill, expressional : proficiency in expressing ideas and feelings with vividness, clarity, force

and gesture as required for the occasion.

skill, manipulative : competency in handling or operating machines and tools.

skill, manual : competency regarding muscular co-ordination of hands and fingers.

skills : an instructional or learning outcome involving some form of physical or motor performance and which the individual has learned with ease and precision.

skills basic : tool skills, such as those of reading, language and arithmetic.

skimming : a method of reading for picking out the general meaning or particular items without going into the details of the text.

skipping, grade : omission of a grade or grades in the orderly progress upward through the grades or the classes of the schools ; thus, a pupil promoted from class 3 to class 5 is said to have skipped one class.

slow learner : a pupil who has obtained scores on intelligent tests below the average but above the limit set for the mentally deficient. The rate of progress of such a pupil is slower than that of the average child though he can learn within the scope of his capacity. The slow learners are generally weak in those subjects which need a good deal of reading and reasoning. These children need help in enlarging their background of experiences which may facilitate in building reading vocabulary and interest.

Smṛiti (Ind.) : [lit., that which was remembered] The traditional knowledge enshrined in the post-Vedic sacred works and Sanskrit literature is known as Smṛiti, since it was traditionally remembered, as distinct from Śruti representing the *Vedas* which were 'heard' by the *ṛishis*. Smṛiti include the *Vedāṅga*, the *Shāḍ-darshana*, *Itihāsa*, *Purāṇa*, *Upaveda*, *Tantra*, *Āgama* and *Upāṅga*.

SMSG : see 'School Mathematics Study Group'.
S.N.D.T. Indian Women's University (Ind.) : a university which has grown out of a school started by Maharshi Annasaheb Karve towards the close of the 19th century for Hindu widows. In 1916, Maharshi Karve established it on the model of the Japanese Women's University. Its ideal was to train women to be *śūmātā* (good mothers) and *śūgrīhīnī* (good wives). The university provides higher education for women through modern Indian languages. Dr. Sir R. G. Bhandarkar, the great oriental scholar was its first chancellor.

social ability : see 'ability, social'.

social adaptation : see 'adaptation, social'.

social consciousness : awareness of one's responsibilities towards the social group.

social controls : the ways in which society exerts its direct or indirect control upon its members and prevents them from deviating from the social norms, customs, and patterns of behaviour.

social-demand approach to educational planning : an approach to plans which forecasts the future need for places on the basis of demographic trends and social demands, but permits a wide scope of choice to the young people. This approach is favoured by those who believe in traditional cultural values and work in a society influenced by public opinion. Flexibility and choice are justified on the grounds that it is difficult to force young people to study subjects not of their liking and to forecast in advance in a fast changing economy.

social-development scale : see 'scale, social-development'.

social-distance scale : a scale developed by E.S. Bogardus for measuring the attitudes of the individuals or groups towards other social groups. It consists of a number of items which permit the subject to indicate the closest social intimacy he will accept between himself and a typical number of the social group in question.

social education : adult education with greater emphasis on its social implications. The concept of social education has grown out of the concept of adult education. It is adult education (1) for a desirable social change ; (2) for betterment of individual, social, economic, political and moral life ; (3) for better work, better rest, better use of leisure and better recreation ; and (4) for enabling a community to assume direction of its own development. A good programme of social education is built up of activities selected according to the needs of the people. Activities may be (1) for imparting knowledge, (2) for bringing about social changes through lectures and group discussions, (3) for education in community organization, (4) for further and continuing education, (5) for recreation and culture, and (6) for the underprivileged classes. (also see 'adult education'.)

social guidance : the phase of guidance that aims at assisting the students in their adjustments to social groups which they belong to. It aims at enabling the students to learn the 'art of living' together.

social heritage : see 'heritage, social'.

social intelligence : ability to adjust to the social environment and work for its improvement. Firstly, it is necessary to have a complete knowledge of the social environment and understanding of current problems and issues.

Secondly, the individual should have power to discriminate opinions. Thirdly, the individual should have the ability to use his knowledge and discriminating power for the improvement of the society by active participation.

social organization : an interrelated and integrated pattern of groups found in a society.

social psychology : a branch of psychology that studies attitudes and beliefs in the behaviour of the group.

socialization of education : use of discussion method, student council and other democratic procedures in the school programme ; modifying the curriculum and educational practices for effectively meeting the needs of the community.

socialized mathematics : see 'mathematics, socialized'.

socialized recitation : a process in which the activities of the class-room are viewed as co-operative ventures in which pupils and teacher work together for the achievement of the ends that are acceptable to all its members ; is an outcome of the educational philosophy of Prof. Dewey with its stress on education as primarily a social process which should take place in social situation.

socialized school : school where each person has a share in determining policies and programmes ; school which effectively meets the needs of the community.

social maladjustment : see 'maladjustment, social'.

social realism : see 'realism social'.

social sciences : a study that deals with human society, its characteristic elements and institutions that involve man's well-being as a member of an organized community. The most easily classified social sciences are : economics (about man's subsistence), psychology (about man's mind), anthropology (about man's ethos), geography (about man's abode), political science (about man's order), history (about man's history), sociology (about man's association). According to the classification used by Unesco it also includes ethnology, home economics, banking, commerce, social welfare, public administration, diplomacy, international relations, journalism, statistics and similar subjects.

social-service activities : kinds of work carried out by schools for the welfare of children by assuming a certain part of responsibilities that belong to other specialized fields. For instance, the school has a certain responsibility for guarding the health of the children though this function properly belongs to the medical

or health department.

social studies : the subject designed to give a measure of knowledge for understanding contemporary society. It is the school adaptation of the scholarly findings of the social sciences. It includes those portions of the social sciences which are pertinent to the immediate purpose of learning and can be adapted to the level of comprehension of the students.

Social Studies in the Schools, Commission on the (U.S.A.) : a Commission sponsored by the American Historical Association and financed by the Carnegie Foundation for bringing together the resources of social sciences and educational research upon the problem of educating youth for a new age. The Commission carried out a 5-year programme of investigation beginning from 1929 and submitted its findings in 1934. It observed that a broad plan was necessary to help education to meet the demands of an emerging collectivism. Creativity, individuality and spirituality was to be fostered through participation in social projects and by broadening the courses in social studies. The Commission also stressed the need of improving the service conditions of teachers.

social studies, reflective theory of teaching : reflective thinking treated as a method to foster conceptualization in learning. A. F. Griffin has elaborately explained what reflective theory means for teaching history. Reflective thought is a method for examining any belief and ascertaining truth which is essential for the survival of democracy. If doubt is considered to be the beginning of all knowledge, occasions for doubt must be positively encouraged. Children as they grow into adults can steadily modify their uncritical acquisition of early beliefs if their reflective capacities are improved and refined, and their emotionally charged beliefs are analyzed. It makes a difference in the development of the mind whether one 'learns to say' that something is true or whether one 'learns' that something is true. The latter depends upon concept formation through reflection.

social studies, research on teaching : most of the research has not been guided by a theory. Some research workers have found problem-solving as adequate for certain purposes while they have favoured other methods for other purposes, without caring for any consistency of purposes under a definite theoretical framework. In the field of theoretical work on method Griffin, Bayles and Hullfish and Smith treat reflective thinking as a method to foster conceptualization in learning. The empirical

studies of Bayles (1950, 1956), Quillen and Hanna (1948), and Kight and Mickelson (1949) have fallen short of testing and clarifying the theory. The methodology of history is now undergoing a great change as a result of investigations on the use of analytical method. Hempel (1959) favoured the explanation of historical events on the model used in natural sciences, as this approach to the study of history would help a better understanding and would avoid the pitfall of sweeping generalizations. Swift's studies (1958, '59, '61) on the teaching of explanation as an aspect of critical thinking stresses the use of logic and scientific method, and opposes all doctrinaire interpretations. It is a refinement on the nature of reflective teaching.

society : an organised collectivity of persons, made up of a network of interconnected groups and organizations. The members of the society are relatively similar in culture. They have more or less clearly recognized interests and for the realization of which they work in close co-operation.

Society for the Promotion of Christian Knowledge : [abbreviated to S.P.C.K.] a society founded in 1699 for promoting Christian knowledge in England and abroad among the children of the poor. By 1704, the society was conducting 89 charity schools in England for the children of the poor.

Society for the promotion of National Education in Bengal (Ind.) : the first society that was set up for the establishment of national institutions in India. It was formed under the chairmanship of Guru Das Banerji. This society started 51 high schools in Bengal.

socioeconomic : referring to social and economic factors and conditions.

socioeconomic approach : an approach to curriculum revision in which the instructional material is selected in the light of current social and economic problems and future trends and needs.

sociogram : a diagram or chart showing the pattern of choices and rejections, likes and dislikes existing between members of a group.

sociology : the objective study of the social behaviour or social action of human beings.

sociology, educational : see 'educational sociology'.

sociology of education : the study of the social factors which are associated with the process of the formation, transmission of knowledge, subjects of interests, school community relations, status system in the schools, etc.

sociometric diagram : a graphic representation

of the social relations among a group of people.

sociometric method : a method of measuring social relationships that exist between members of a group. Each member of the group is asked to specify privately his choices and rejections of persons for some specified activity. The results of a sociometric study may be graphically represented in a sociogram.

sociometric test : a scale on which a group of people are asked to list the other group members whom they like or dislike.

sociometry : the technique of studying the relations among group members in terms of the degrees of attraction, indifference, or repulsion among them. It is a quantitative aspect of interpersonal phenomena.

Socratic method : method of making the pupil realize his ignorance by the aid of skilful questioning so that he may become ready to learn. It is a conversation method, also called 'dialectic' method, developed by Socrates. Socrates believed that the function of the teacher was to arouse in the pupil the spirit of the learner and to stimulate his thinking by suggestions. There are two stages of his method : the ironic or destructive stage when the learner is led through questions from unconscious ignorance to conscious ignorance, and the 'maieutic' or constructive stage when the learner is led further from ignorance to clear understanding of the truth.

sophists : title given to certain itinerant teachers who were men of wisdom or culture and trained their pupils for the duties of civic life ; these teachers called as 'sophists' were educators rather than philosophers.

soul [*ātman*] (*Ind.*) : see 'ātman'.

sound substitution : a speech error in which one speech sound is replaced by another as in 'hi' for 'his'.

source scale : a series of items of graded difficulty from which tests can be constructed, e.g., a spelling scale.

sour grapes : a form of rationalization in which a person who fails to obtain his objective rids himself of regret or anger by stating that the objective was not worth achieving. In Aesop's fable the grapes represented the objective and when not obtained were said to be 'sour' by the fox.

span, digit : see 'digit span'.

span, auditory : see 'auditory span'.

span, digit : see 'digit span'.

span, eye : see 'eye span'.

span, eye-voice : see 'eye-voice span'.

span, memory : see 'memory span'.

span of apprehension : the maximum number of objects which can be simultaneously apprehended correctly. It changes from person to person and in the same person from time to time.

Spartan education : the object of the Spartan education was the formation of body, mind and character of the citizen for the defence of himself and his country. This was very essential as these men lived in the midst of difficulty and danger, and therefore, physical and military training formed the main part of education.

speaking vocabulary : see 'vocabulary, speaking'.

Spearman-Brown formula : see 'prophecy formula'.

special education : the education of the deaf, the blind, the mentally retarded, the gifted and others who are physically, mentally and socially so different from the normal pupils that the standard curriculum does not meet their special needs. They need different methods of instruction, special curriculum and special treatment.

special teacher : teacher teaching a particular subject (English, physics, art or music) in a school. He may be distinguished from a regular teacher who spends all his time with a particular class. In the primary stage the emphasis is on a rounded personality of the child in close contact with a regular teacher who will have enough time to understand the child better. But in secondary stage no one teacher can be a specialist in all the subjects and therefore special teacher is needed for each specialized field.

speech correction : special methods used to alleviate or eliminate speech defects and disorders. The hard-of-hearing persons have difficulties in learning speech but can be benefited by speech correction. Stuttering characterized by hesitancy and repetition of sounds cause great embarrassment to the stutterer. Dysphonia is the hoarseness and whisper-like qualities that produce disturbance in the voice which may be improved by speech correctionist. There are other speech defects caused through bad habit like lisping and delayed speech. Re-educational techniques for the correction of speech may be carried out individually or in small groups.

speech disorder, functional : defective speech that has no apparent physical or physiological cause.

speech disorder, organic : defective speech that has an apparent physical cause, such as cleft palate.

speech tic: an involuntary muscular twitching usually appearing on the face and accompanying any act of speaking.

spelling: Ideally there should be one symbol for each sound and one sound for each symbol to aid spelling. In English 26 alphabets are made to work for 17 vowel sounds, 28 consonant sounds and 5 diphthongs. Correlations between reading and spelling are relatively high. More often a word is seen in reading the more probable it is that the student will learn to spell it. Teacher's checking of spelling errors does little good unless it is followed by an effective plan for learning the words so mis-spelt. Diagnosis and remedial teaching may help children having spelling difficulties. Analysis of the types of errors frequently made in classroom tests may suggest definite remedies. Types of errors may include omissions (wether), additions (waite), insertions (similiar), substitution (tence), transposition (believe), and phonetic error (they). Some teachers have found it useful for the students to prepare individual lists of words frequently mis-spelt in an alphabetical order.

spelling consciousness: awareness of getting into spelling errors.

spelling demon: the word that is persistently mis-spelt by a majority of persons.

spelling list, basic: a list of words that should not be mis-spelt and therefore specially taught to spell correctly.

spelling list, individual: a list prepared by each child of those words which he generally finds it difficult to spell. Sometimes the list is arranged in an alphabetical order for easy reference.

spelling scale: see 'scale, spelling'.

Spens Report (Brit.): a report of the Consultative Committee of the Board of Education, under the chairmanship of Sir Will Spens, regarding secondary education with special reference to grammar schools and technical high schools. The report, published in 1938, recommended the expansion of technical schools, the continued development of secondary education in different types of schools—grammar, modern and technical, the establishment of parity between all types of secondary schools regarding staffing and salary, the introduction of courses based on pupil's vocational interest, adoption of a tutorial system, and the raising of the school leaving age to 16.

Spiral method: a method for studying school subjects by recurring topics. This is the same as the concentric circle method. The treat-

ment of the subject at each stage depends upon the need and maturity of the child, each recurring treatment being more thorough than the previous one.

spiral test: see 'test, spiral'.

spoon-feeding: a term used for the practice of providing ready-made answers and solutions to students by teachers. Spoon-feeding is educationally condemned on the ground that it stifles self-activity, self-effort and independent thinking on the part of children.

spurt, beginning: see 'beginning spurt'.

Sri Aurobindo Ashram School (Ind.): school started in Pondicherry in 1940 for the sole purpose of catering to the needs of the education of the ashramites. The primary object of the school is to give a practical shape to the ideals and principles of educational philosophy of Sri Aurobindo. An attempt is made to establish close relationships between the teacher and the taught. The institution is established on the ideals of ancient India with due emphasis on the requirements of a modern age.

Sri Aurobindo International Centre of Education: an educational institution established on January 6, 1952, in Pondicherry with a view not only to commemorate the memory of Sri Aurobindo but also to give practical shape to his educational philosophy.

stage, babble: see 'babble stage'.

stage, oral: see 'oral stage'.

stage, schematic: see 'schematic stage'.

stagnation: retention of a student in a class for a period of more than one year. Important causes of stagnation may be enumerated as (i) uncongenial atmosphere; (ii) defective curriculum and methods of teaching; (iii) unrealistic system of examinations; (iv) overcrowded classes and lack of individual contact. It is usually measured by the percentage of promotion to the next higher class at the end of the school year.

standard: a level of performance or a goal or objective or criterion of pupil attainment expressed either numerically as a statistical average or philosophically as an ideal agreed upon by experts.

standard deviation: a measure of variability; the distance above and below the mean that includes 68.27 percent of the cases or scores. It is the square root of the mean of the squared deviation of scores from the mean of the distribution.

standardization: a process of constructing a test and establishing norms for it.

standardized test: see 'test, standardized'.

standard score : any derived score on a test or other measuring device based on deviation from the arithmetic mean expressed in terms of the standard deviation.

stanine scale : a nine point, one digit scale dividing the base line of the normal curve in 9 equal parts.

Stanley's despatch (1859) (Ind.) : a despatch, issued by Lord Stanley, the Secretary of State for India, in which he expressed his entire satisfaction with all the principles laid down in Wood's Despatch (except primary education). He observed that the grant-in-aid system hitherto in force in spite of its success with English and Anglo-Vernacular schools, was not suitable for providing primary education to the masses. The Despatch suggested that the Government should itself run primary schools, pay special attention to the training of teachers.

startle pattern : an extremely rapid reaction to a sudden, unexpected stimulus (like a gun shot), characterized by the closing of the eyes, widening of the mouth, and thrusting forward of the head and neck.

State Institute of Education (Ind.) : the principal academic wing of the State directorate of education staffed by experts in different fields who can make their expertise available to field officers, principals, headmasters and teachers. These institutions are still new, most of them established in 1964. Most of the work related to in-service education of departmental officers, improvement of teacher education, curricula, guidance, research, and evaluation have been taken up by them at the State level.

statistical inference : conclusions drawn concerning a population on the basis of findings obtained from one or more samples.

statistical significance : see 'significance, statistical'.

statistical validity : evidence of test validity expressed numerically as shown by correlational relationships or other statistical procedures.

status : the rank or the position accorded formally or informally to a person within the social structure of a group.

status discrepancy : a difference in ranks of an individual in two different status systems, e.g., a labour leader may have a high rank in the power status system, but a relatively low rank in the social-class status system.

status needs : specific needs which help to achieve a status in a group, like needs for prestige, power and security.

stealing : Children should have definite ideas of property rights at the age of entering school. There may be several reasons for stealing : poor home training, desire to procure what one does not have, neurotic disturbance, etc. Cases of stealing may be treated after discovering the motives behind them. Appreciation of property rights is essential to honest behaviour. The reasonable want of a child is to be satisfied. He should have opportunities for success or group acceptance so that stealing may not result from a sense of inferiority. Problems of stealing will have to be dealt objectively and the child should not constantly be reminded of his past mistakes.

steps, Herbartian : see 'Herbartian steps'.

stimulus : any object, energy or change in the physical environment that excites a sense organ.

St. John's College programme (U.S.A.) : a four-year programme based on liberal arts curriculum leading to B.A. degree as inaugurated by St. John's College, Annapolis, in 1937. It is believed that a basic training in the liberal arts and an intellectual experience of the great minds of our civilization are the prerequisites for any professional training or any situation in life. The curriculum is organized around over a hundred great books from Homer to the 20th century including Sophocles, Plato, Euclid, Vergil, the Bible, Dante, Chaucer, Leonardo, Copernicus, Shakespeare, Newton, Rousseau, Gibbon, Kant, Hegel, Goethe, Dickens, Dostoevski, Marx, Tolstoi, Ibsen, Freud, Russell. The list undergoes constant revision as a result of teaching experience. The students are helped through regular seminars, tutorials and lectures. In the fourth year a student gets a month off to write a dissertation which tests his capacity to say something important and significant which he is required to defend in one-hour oral examination.

story telling : It has an important place in kindergarten, nursery and primary schools as it helps the emotional, linguistic and intellectual development of the young children who learn new vocabularies, and new ideas, absorb correct patterns of speech and develop readiness for reading. Attributes for successful story telling are : selection of a story suitable to the age and interest of the audience, visualization of events, naturalness of expression, good voice and emphasis at proper places to produce dramatic effect.

stratified sampling : see 'sampling, stratified'.

stri-parva (Ind.) : [lit., the section of the

women] the eleventh book of the *Mahābhārata* containing the wailings and lamentations of Gandhari and the other women over the slain heroes.

Strong's Vocational Interest Blank : one of the most dependable inventory for measuring interests. The interest blank consists of five forms each containing 400 separate items. The individual concerned is asked to indicate what he likes and dislikes by filling out the blank, and his rating is determined by comparing with the 'norms' already established.

structural approach to the teaching of a language : an approach to the teaching of a language based on 'structures', each 'structure' defined as a sentence built to a specific word-order. The approach helps the pupils in the limited amount of time available, to acquire a good grasp of a foreign language in its simplest form for purposes of communication. The most useful 'Structures' of the foreign language are selected and graded. The syllabus built on a structural approach emphasizes the following principles: the sentence is to be treated as a unit: the 'structures' are to be carefully graded, the easily demonstrable 'structures' being taught first leading on to the more difficult forms, reading should be started only after the foundation has been laid orally; minimum recourse is to be taken to the mother tongue.

student, council : aims at giving the students—both as electors and officials—some practical experience in the democratic form of living through the setting of a miniature democracy in the school in the form of an organisation whose representatives are either selected or elected from amongst the student community of the school.

student counsellor : see 'counsellor, student'.

student court : a phase of school self-government in which selected students sit as a court of justice to deal with cases of indiscipline or breach of school regulations and to propose penalties.

student government : see 'government, student'.

student handbook : see 'handbook, student'.

student load : amount of work for a student during a particular term. In schools the student load is commonly determined by the number of subjects or courses one has to pursue, in colleges it is defined in terms of semester hours.

studentship in the Arthveda (Ind.) : the *Arthveda* is the only *Veda* describing the system of studentship and exalting the institution of

Brahmacharya. The pupil was initiated into the stage of studentship through the performance of a ceremony called *Upanayana* by his *ūchārya* (teacher) who imparts to him a new birth, a spiritual birth, so that the pupil emerges as a *divja* (twice-born) or as a *brahmachāri* (one who adopts the vow of the Vedic studies). The *brahmachāri* had to undergo physical discipline of wearing *kusa* girdle and deer skin, letting his hair grow, collecting fuel and tending fire, and begging and spiritual discipline of worshipping fire, practising austerities, controlling senses, living a dedicated life and satisfying the *ūchārya* by gifts. He prayed for the success in his study of the Veda, for faith, wisdom, insight, longevity and immortality. Girls could also accept *Brahmacharya* and pursue a life of studentship undergoing both physical and spiritual discipline.

student teaching : supervised teaching done by the prospective teachers as a part of their professional training, often preferred to the term practice teaching. It includes participation of the prospective teachers in the co-curricular activities also. Broadly speaking the term includes observation, participation and actual teaching done by a student preparing for teaching.

study, group : see 'group study'.

study habits : methods of study. The teachers should present to the class the most effective techniques or methods of work, as proved by experience and experiment, so that the students may make their choice. Unfortunately many students do not know how to study, for no one method should be considered the best for all. It may also vary from subject to subject. It is not enough that a student knows how to study but he should practise it ardently so that he may not lapse into his old ineffective study habits.

study, supervised : see 'supervised study'.

stuttering : a speech impediment in which the even flow of words is interrupted by hesitations, repetition of speech elements, silent intervals; spasms of breathing and reactions of unusual strain.

subjectivity : the degree to which measurement results are influenced by personal opinions or judgements.

sublimation : the act of directing the energy belonging to a primitive tendency into new channels having objectives of higher values. For example, Freud believed that a sex drive could be partially gratified by channelling into some form of aesthetic activity.

substitute teacher : a teacher who temporarily takes the place of a regular teacher in his absence. The arrangement of a substitute teacher is made by a new appointment made on a temporary basis, through a teacher already appointed as a leave reserve, by utilizing the free time of the regular teachers, or from a panel of teachers already approved for substitute service.

substitutional method : a method of correcting habitual errors of pupils by establishing a totally new mode of response. For instance, the children who stutter can be taught to sing words containing the troublesome letters so as to overcome the habit of stuttering. The other method of correction is the inhibitive method in which the child is made conscious of the error and is directed not to make error. In the example given above the inhibitive method may not be fruitful. The substitution method seems best in the correction of quite stubborn habits.

substitution test : see 'test, substitution'.

suggestion : a tendency which manifests itself in taking over the ideas and thoughts of others. This tendency differs in strength and extent from person to person. Most of the beliefs and ideas of children are built on the suggestions received from their teachers or elders. Teachers and parents can greatly influence children through good and wholesome suggestions presented at the appropriate time in an effective manner.

suggestion, post-hypnotic : see 'post-hypnotic suggestion'.

suggestive questions : a question so worded that it contains the main ideas of the problem and thus helps the student, in a suggestive way, to get the correct solution with a little reasoning.

Summer Hill School (Brit.) : A.S. Neill's celebrated school, Summer Hill is acknowledged landmark in educational theory and practice. It is famous as one in which educational experiment is conducted on revolutionary lines and in which the published theories of its Head Teacher (A.S. Neill) are put into practice. A.S. Neill puts an absolute confidence in the children under his care.

summer schools : courses or classes conducted during the summer vacation. Probably Prof. L. Agassiz of Harvard was the first to start the first summer school in December, 1872. The course was designed during the summer months primarily for teachers who proposed to introduce the study of natural history into their schools, and for students preparing to

become teachers. Today many universities and schools in the world are covered with a network of vacation courses or summer schools. Students and teachers come into direct contact with experts of the subjects. It is very useful for introducing new techniques and ideas and training of teachers.

Sundara-kanda (Ind.) : [lit., beautiful section] the fifth book of the *Rāmāyana* describing Rāma's building a causeway of stones across the sea with the aid of the *vānara* hosts and his crossing to Lankā, the kingdom of Ravana.

Sunday school : classes held on Sundays under the auspices of Protestant religious denominations for providing religious and ethical instructions.

superego : that component of mental life which restrains the activity of the 'ego' and 'id'. It corresponds closely to what is commonly called conscience and keeps a person working towards ideals developed by parental standards.

Superintendent of Public Instruction : see 'Director of Education'.

superiority complex : a feeling or an attitude of an individual about self that he is superior in some or all ways to the general run of persons. Such a complex is genuine in the case of some individuals whereas in many cases it represents compensation against feeling inferior.

superior school (Can.) : a secondary school or a school with grades I to X.

supervised play : see 'play, supervised'.

supervised study : a period of study under the direct supervision of a teacher wherein the student is placed in the position of the greatest possible intellectual activity and is expected to gain his skill, knowledge and insight through the process of absorbing and thinking about the material assigned. In its simplest form the procedure is to assign a certain topic included in a certain number of pages. After this the students read the passages indicated and the teacher goes round the class and helps students individually.

supervision : school supervision is meant to help an all round improvement of the school. Ideas concerning the nature of supervision vary. It may be interpreted in terms of efforts made by the school administrators and supervisors to stimulate, guide and co-ordinate the continued professional growth of teachers both individually, and collectively, so as to enable them to stimulate and guide in an effective manner the continued growth of every pupil. The supervisor's role is more in the nature of assisting, supporting

and sharing than that of directing, controlling and policing.

supervision, autocratic : fault-finding endeavour followed by dictatorial directions for instructional improvement.

supervision, co-operative : supervisors and teachers working and planning together for the improvement of instructions.

supervision, departmental : the delegation of responsibilities by the principal to the head of each faculty or department to bring about improvement within the department and co-ordination of the work of departmental heads.

supervision, inspectional : narrowly conceived supervision limited to the rating of teaching and the teachers on the basis of classroom visits.

supervision, invitational : help and guidance given to the teachers for the improvement of instruction, only on the teachers' own request or invitation.

supervision, line-and-staff organization of : supervision provided by two groups of officers—(1) the line officers like inspectors, principals and departmental heads to whom teachers are directly responsible, and (2) the staff officers like subject specialists to whom teachers are not directly responsible.

supplementary method : a method of teaching used to supplement another method and, thus, to counteract its disadvantages. Any particular method of teaching having some special advantage may be accompanied by a counterbalancing disadvantage. Therefore each method requires to be supplemented by others. For instance, oral reading is necessary at the initial stage for translating visual symbols into correct sound, but later it has to be supplemented by silent reading for quick and accurate thought getting, for this would be the manner in which the child will actually read books in life.

supplementary reader : see 'reader supplementary'.

supplies, instructional : school supplies which directly help learning, like paper, pencils, workbooks, ink, art material, etc.

supportive therapy : a form of therapy which stresses supporting of defences and making them more effective. Rather than uncovering the deep conflicts it aids the repression.

Supreme Spirit [Brahmā] (Ind.) : see 'Brahma'.

Survey, First All-India Educational : an educational survey of India carried out by the Ministry of Education in collaboration with the State Governments from November 1957

to April 1959, in order to correct the uneven distribution of schools to the extent possible and to decide the location of new ones to be opened in a planned manner. The main objectives of the survey were : (1) to identify and enumerate every distinct habitation ; (2) to enumerate the existing primary, middle and high schools and the habitations served by them, and (3) to plan school areas for each primary, middle and high school in a rational manner so as to derive the maximum benefit with the minimum of additional outlay.

Survey, Second All-India Educational : an educational survey of India carried out by the National Institute of Education in 1965-66, in collaboration with the State Governments and the Administrations of Union Territories. This survey, like its predecessor, is confined to school stages. It relates to the revision of the data of the first survey and the collection of data required to prepare the District Development Plans. Some of the findings are : The percentage of rural population with primary sections is 94.96 and with middle sections is 82.25 ; 71.37% of the population are served by secondary sections ; the enrolments in classes I to V, VI to VIII, and IX to X are 74.36%, 30.15% and 19.37% respectively of the estimated population in the age-groups 6+ to 10+, 11+ to 13+, and 14+ to 15+ respectively. There are 19,09,187 teachers in the country, 62.6% in primary sections, 22.8% in middle sections and 14.6% in secondary sections ; women constitute 21.7% of the total number of teachers in these schools.

survey method : a research method that aims at ascertaining prevailing conditions through collecting data by sampling a cross section of the population. As distinguished from experimental method, it employs questionnaires, score cards, interviews, check lists, etc. for collecting data. For example, questionnaires may be sent to a large number of married couples for ascertaining factors in marital happiness. It is possible to gather data from a relatively large number of cases at a particular time.

Svargarohana-parva (Ind.) : [lit., ascent to heaven section] the eighteenth book of the *Mahābhārata* containing the admission to heaven of Yudhisthira with his brothers and Draupadi.

syllabus : an outline of a *course of study* ; an official guide for the use of supervisors, teachers and students of a particular school or school system to help teaching in a subject for a

certain grade or class. The course of study may also include the general and specific aims of the course, the expected goals, and suggestions regarding supplementary reading, audio-visual aids, related activities and special teaching methods. It is sometimes loosely used as a synonym for 'curriculum', which is incorrect according to educational terminology.

symbolic thinking: see 'thinking, symbolic'.

sympathy: a tendency to experience the feelings and emotions of others immediately on perceiving the expression of these feelings in others as defined by Drever. Young children manifest this tendency when they cry with fear on perceiving this feeling in their parents or in their companions. If properly under-

stood, this tendency can be very conducive to a happy group spirit in the class or school.

syndicate: the executive authority of a university which frames regulations, prepares budget and administers finances.

syndrome: a pattern of symptom that is typical of a particular disorder or disease.

synthetic method: a teaching method where the parts are developed first and then the pupil proceeds to construct or identify wholes. In the teaching of reading if one begins with letters and syllables and then studies words and sentences, the method would be called synthetic.

system, monitorial: see 'monitorial system'.

system, nervous: see 'nervous system'.

T

taboos: the don'ts of a particular society rigidly observed by the members of that society; a solemn social restraint against specific behaviour or word.

tabula rasa theory: the theory of Locke that mind in its original state was a sheet of 'white paper', void of all characters, a 'tabula rasa' or wax tablet on which grooves are made as by a stylus.

tabulation: the process of grouping and classifying data.

tachistoscope: a device for exposing strips of reading material or pictures for a very brief period. This is used for improving reading and visual perception.

Taittiriya Upanishad (Ind.): one of the *Yajur-Vedic Upanishads* included in *Taittiriya Aranyaka*.

tala-mana (Ind.): *tala*—measurement, a system used in sculpture to determine proportions which were fixed by the rules of iconometry, in which *tala*, the palm was the unit, and was considered equivalent to the length of the face. The size of the ideal figure in sculpture was measured as so many *talas* or so many times the face length, e.g., for a woman *sapta-tala* (7-*tala*) norm was used, for a man *ashta-tala* (8-*tala*), for a goddess *nava-tala* (9-*tala*), for a minor god *dasa-tala* (10-*tala*), for a major god *ekādaśa-tala* (11-*tala*), and for a demon *dvādaśa-tala* (12-*tala*) norm was used.

tamas (Ind.): [lit., darkness] one of the *gunas* or constituent principles of *Prakriti*. It is the attribute of gloom, inertia and matter,

and is associated with black colour. It results from ignorance and excites sensual and earthly desires. It resides in the body and produces fear, sloth, stupidity and immorality. It is inherent in cold and polluted food, alcoholic drinks, etc., and is the attribute of men with dull mind and 'animal' nature.

tanmatra (Ind.): five forms of universal energy as the quintessence of matter, viz, (1) *Shabda* (sound), (2) *Sparsha* (touch), (3) *Rupa* (form), (4) *Rasa* (taste) and (5) *Gandha* (smell). It is potential matter apprehended in the sensation of sound, touch, shape, taste and smell.

tantra (Ind.): the canon of tantrism, the teachings followed by certain left-hand sects of Hindus and Buddhists. The *tantras* deal with the creation and dissolution of the universe, worship, spiritual exercises, rituals, meditation and magical powers. It is opposed to Hindu orthodoxy and is associated with occultism.

tapa (Ind.): a method of meditation sustained by a life of ascetic austerity for the acquisition of the highest knowledge and saving wisdom (and not of ordinary secular knowledge of sciences and arts).

Tat tvam asi (Ind.): [lit., 'that thou art'] a great saying from the *Chhāndogya Upanishad*, meaning you (the individual) are that (Universal Essence). The aphorism stresses the identity of all things in *Brahma*.

Taunton Report (Brit.): a report (1868) of the Royal Commission known as the '*Schools Inquiry Commission*' appointed in 1864 under

the chairmanship of Henry Labouchere, Baron Taunton to inquire into the education given in schools not comprised within the scope of the New Castle and Clarendon reports and to report what measures are required for the improvement of such education. It made recommendations regarding the central and local control of these schools and the improvement of the muddled state of their endowments. It suggested three types of schools according to the wishes of the parents: first grade, second grade, and third grade with leaving ages of 18, 16, and 14 respectively.

tax, education: see 'education tax'.

Taxila (*Ind.*): an ancient seat of learning situated about 20 miles west of Rawalpindi. Taxilā did not have any colleges or university in a modern sense. It was a centre of education with many famous teachers to whom students flocked for higher education from far off cities like Banāras, Mithilā, and Ujjayīni. Every teacher assisted by his advanced students formed an institution by himself. The three *Vedas*, grammar, philosophy and 18 *sippas* including medicine, surgery, archery, military art, commerce, agriculture, music, dancing and painting were subjects available for specialization. Very little is known about its educational activities after the beginning of the Christian era. The Little Yuch-Chis who succeeded the Kushanas and the Huna invasions may be the cause for the city's complete wreck.

teacher: a person directly engaged in instructing a group of students. Heads of educational institutions, supervisory and other personnel may be counted as teachers for administrative or technical purposes only when they have regular teaching functions.

teacher [*guru*] (*Ind.*): see 'guru', *āchārya*, *upādhyāya*.

teacher, apprentice: see 'apprentice teacher'.

teacher, beginning: see 'beginning teacher'.

teacher, nineteenth century: see 'The School Boy', a poem by Oliver Wendell Holmes including a description of the 19th century teacher.

teacher, part-time: see 'part-time teacher'.

teacher, special: see 'special teacher'.

teacher substitute: see 'substitute teacher'.

teacher accession: addition in the teaching staff due to the joining of new teacher on vacant or newly created posts.

teacher accounting: see 'accounting teacher'.

teacher assignment: see 'assignment, teacher'.

teacher counsellor: a teacher, trained in counselling, who devotes a part of his time

for guidance and counselling purposes.

teacher education: programme of activities and experiences required for the preparation for, and improvement of members of the teaching profession. It consists of pre-service and in-service education. 'Teacher training' is an older term limited to the development of proficiency in the skills and methods of teaching, while teacher education is a broader concept for professional preparations.

Teacher Education, Commission on (*U.S.A.*): a commission set up by the American Council on Education in 1938 for a period of five years to study the problems relating to the training of teachers. The main emphasis was on child development, selection and adjustment of teachers, and teachers' responsibility in a democracy and a changing social order.

teacher failure: failure of teacher in performing his duties. Reasons for failure may be: lack of aptitude for and interest in the profession; frustrations due to too much work; unfair criticism and no prospects of promotion; failure in adjusting with school situation; and dissatisfaction with school policies, assignment of duties or salary. Most of these factors can be overcome by better selection of students for training, more realistic teacher training, better methods of selection or recruitment of teachers, improved school conditions, effective school administration and helpful supervision.

teacher librarian: see 'librarian, teacher'.

teaching load: see 'load, teaching'.

teacher-made test: a test constructed by the teacher, such as the essay and informal objective tests.

teacher probation: see 'probation, teacher'.

teacher-pupil ratio: see 'pupil-teacher ratio'.

teacher recruitment: procedures for teacher recruitment which varies from place to place. Teachers are recruited by means of inviting applications through advertisements or public announcement of vacancies, by soliciting the services of local or State employment exchanges, or by asking for the names from teacher training colleges. Some school systems in America in case of teacher shortages, make budgetary provisions for the administrators for making recruitment trips to college placement offices in search of promising candidates. Many schools have illustrated pamphlets or brochures giving full details of the schools and communities supplied to placement offices for the use of prospective candidates.

teacher selection: the screening of application

forms or the statements sponsored by the employment agencies, during the process of recruitment, with the object of calling the desired number of candidates for the personal interview. The board of interviewers is generally represented by an administrator, an educationist, a specialist and the governing body or managing committee. It is always useful to develop a guide or form to record ratings. Attempt is made to review, as best as possible in the available time, all the pertinent factors predictive of a successful teacher like academic record, qualifications, experience, participation in co-curricular activities, personality, speech, dress, professional outlook, knowledge of his subject and other qualities related to teaching efficiency. In some countries the administrators observe the candidates in an actual teaching situation as a part of the selection process.

Teachers, National Awards for (Ind.): see 'National Awards for Teachers'.

teachers, rating of : systematic and periodic evaluation of the work and performance of teachers to promote teaching efficiency, assess the need and extent of guidance, determine promotion, etc. It is also necessary for the teachers to know their competency and weak areas that need attention. Rating is done through some type of evaluative criteria which can be administered with objectivity. The principles for and item of evaluation should have a wide acceptance. Direct and regular observation plays an important part in an evaluation process. Evaluation conferences between person who evaluates and person who is evaluated may prove helpful.

teachers' contract : see 'contract, teachers'.

teachers' handbook : a compact compilation for the use of teachers as a ready reference to information needed in his daily work. It contains details of daily and periodic routines, statements of policies and procedures, instructions for dealing with specific assignments and cases, etc. A selection has to be made out of the countless topics that can be included, for a voluminous handbook may not be useful as a handy reference. Either a committee of experienced teachers may initiate the compilation of a handbook or the principal may prepare it. It is better to evaluate its effectiveness in the first year so that it may be a revised handbook for the following year.

teacher's meetings : meetings of the teaching staff periodically held to facilitate the general administration of the school and to further the professional growth. When problems related to a certain class or grade are discussed,

the meeting may be termed as grade meeting. When problems related to the teaching of a subject is discussed, it may be called a faculty meeting.

Teachers' Welfare, National Foundation for (Ind.): see 'National Foundation for Teachers' Welfare'.

teachers' workshop : a group of teachers engaged in an experience-centred study of certain problems of education. Consultants and resource personnel place their special knowledge and expertise at the disposal of the group or sub-groups. The workshop is characterized by its informal discussions, functional and realistic approach, flexibility, and relevance to specific tasks. It helps to enlarge knowledge, broaden outlook, exchange ideas, grow confidence and stimulate a desire for further growth.

teaching : what is being taught ; any act of instructing students in an educational institution ; in a broader sense, any act of providing learning situations, guidance, activities, material and other facilities conducive to learning, formal or informal.

teaching demonstration : see 'demonstration teaching'.

teaching, direct : an organized instructional programme for teaching specified items of knowledge or skills at prescribed timings and in a systematic manner.

teaching, incidental : any teaching that occurs incidentally while carrying out other school work or activities.

teaching indirect : any activity that contributes to learning without being directly connected with the teaching act.

teaching, object : see 'object teaching'.

teaching, personnel : see 'personnel teaching'.

teaching, preventive : teaching directed to prevent the development of any wrong learning or faulty habits at the initial stage.

teaching, remedial : see 'remedial teaching'.

teaching machine : a device for presenting a learning programme. Teaching machines vary in complexity from the 'box' to the large expensive electronic device. Programmed learning is a means to allow individual students to teach themselves at their own rate of progress.

teaching of history, generalization in the : see 'history, generalizations in the teaching of'.

Teaching Profession, World Confederation of Organizations of the : see 'World Confederation of Organizations of the Teaching Profession'.

teaching social studies, research on : see 'social studies, research on teaching'.

teaching university : a university which itself provides instruction to its students through its own teachers. The classes are held either in the university departments or in constituent colleges. It is distinguishable from an affiliating university.

teaching vocabulary, research on : see 'vocabulary, research on teaching'.

team-teaching (U.S.A.) : a co-operative teaching involving a group of teachers to meet the individual differences of students and to expose them to the best in talent and training of teachers. A group of as many as 200 pupils may assemble to hear a lecture from a master-teacher expert in a special subject or area, and then may break down into smaller groups or tutorials to pursue the material offered in the large group.

technical education (1854-1904) (Ind.) : Technical education was considered as an extension of general education. The memorandum of the Government of India on technical education in 1886 suggested that drawing and the rudiments of sciences should be taught in all the elementary schools and that throughout the educational system in general the study of natural sciences and the cultivation of the faculty of observing and reasoning should be encouraged. The non-existence of suitable education to qualify Indians for posts requiring industrial or technical knowledge was met by the importation of men from Europe who supervised and gave training to illiterate Indian labour in the mills and factories. However, the needs of public works and other Government Departments had led to the establishment of four engineering colleges at Roorkee, Poona, Madras and Calcutta between 1856 and 1858. The Victoria Jubilee Technical Institute, Bombay, was founded in 1887 primarily through private effort. In 1904, there were 123 industrial schools in the country teaching 48 trades to 8,405 pupils.

technical education (1904-1947) (Ind.) : the Government of India Resolution on Educational Policy, 1904, stated that the government will give assistance in the form of scholarship to selected students to enable them to pursue a course of technical education under supervision in Europe or America. One hundred and thirteen scholarships of £150 a year each were given to candidates for technical education abroad between 1905 and 1917. There was a growing demand among the Indians that technological institutions should be established in India to obviate the need for going abroad. Accordingly, a number of

technical institutions such as the Indian School of Mines, Dhanbad, the Harcourt Butler Technological Institute, Kanpur, and the School of Technology, Bombay were established. This, however, fell short of the needs of India. A large number of Indians continued to go abroad. The Sargent Report in 1944 regarded the establishment of an efficient system of technical education at all stages as a matter of great urgency. The establishment of the All India Council for Technical Education in India was a great landmark in the history of technical education in India.

technical education (after 1947) (Ind.) : According to the 7th Schedule of the Constitution, the Union Government is responsible for co-ordination and determination of standards in institutions for higher education or research in science and technology. In addition, the Union Government has the sole responsibility for the maintenance of the technical institutions under Central Universities and a few Central institutions. The Union Government is solely responsible for the maintenance of technical and vocational institutions in Union Territories. One of the major achievements of the post-independence period is the development of technical education. Among the various factors which led to the rapid progress of technical education were the creation of the Scientific Manpower Committee in 1947, the Engineering Personnel Committee (1956), the Committee for Post-Graduate Engineering Education and Research and the Apprenticeship Act (1961). Valuable assistance in the form of scientific and technical equipment, services of expert professors in various branches of technology was received from Unesco in 1951, followed by the U.S.A., the U.S.S.R., West Germany, Colombo Plan, etc. Higher technological institutes were established at Kharagpur, Bombay, Madras and Kanpur in 1951, 1958, 1959 and 1960 respectively. Another important feature of research at higher scientific and technological level has been the establishment of 27 National Research Laboratories and Institutes under the Council of Scientific and Industrial Research. In 1966-67, there were 137 institutions offering courses in engineering and technology at the first degree level and 284 institutions conducting courses at the diploma level. The admission to these institutions were about 25,000 and 46,000 respectively.

technique : a procedure or method required in any study, activity or in the manipulation of an instrument. It involves a degree of expertness.

techniques, projective : see 'projective techniques'.

technique, unstructured : see 'unstructured technique'.

teens : the ages from thirteen to nineteen inclusive ; corresponds closely with the period of adolescence.

telescope : a type of stereoscope adjustable for various distances used for testing visual efficiency.

television, educational : see 'educational television'.

'tell-and-do' method in mathematics : see "mathematics, 'tell-and-do' method in".

temper tantrum : a fit of temper indulged in by young children to obtain their way. They often throw themselves on the floor in an outburst of anger and luck, and scream, in order to get what they want.

tendency, central : see 'central tendency'.

term paper : a lengthy essay written by students by the end of a term as part of a course required and, presumably, based on sufficient individual study.

test : in the general sense, any instrument used in the measurement of any educational or mental ability, achievement, interest, etc. The term is often used to mean a test battery, test instrument, test item, test form or testing.

test, ability : see 'ability test'.

test, alternate-response : an objective test of recognition in which each item has two possible answers. It may be in the form where the pupil has to respond to statements or questions by indicating T (True) or F (False), R (Right) or W (Wrong), Yes or No ; or in the form of 'There are seven days in a week/weak', where the student has to select the right word. Since in such tests the factor of guessing operates at its maximum, it is advisable to have them longer than other recognition tests in order to obtain equally reliable results.

test, analogies : an objective test to measure the ability to perceive similarities and differences or relationships between two things, ideas or figures. The test involves the parallel relationship of two pair of things, the missing term of the second pair is to be supplied on the analogy of the first pair, e.g.,

white : black = hot : —

rose : red = grass : —

3 : 9 = — : 49

Delhi : India = Paris : —

(1) England.

(2) Italy.

(3) France.

(4) U.S.A.

test, antonym : a vocabulary test in which the opposites of a series of words have to be supplied. It may also be composed in multiple-choice form, e.g., centrifugal, (1) centipede ; (2) centralize ; (3) centripetal ; (4) centricity. It is also called '*opposites test*'.

test, aptitude : a test designed to measure the potential ability of a person for performing a certain type of activity. It is a capacity test as in mathematics-aptitude test or a musical-aptitude test.

test, attitude : a test designed to measure the emotional pattern of likes and dislikes of a person, mostly in relation to personal adjustments.

test, basic skills : see 'basic skills test'.

test, best-answer : a type of multiple choice test involving judgment or fine discrimination. A selection has to be made out of several suggested answers in which all may be partly correct except one which proves the best answer.

test, bi-factor : see 'bi-factor test'.

test, cause-and-effect : test is generally in the multiple choice form used in social, physical and biological sciences in which one has to select the correct cause (or the correct effect) in relation to the effect (or cause) given.

test, classroom : a teacher-made test, objective or essay type, for the use of the classroom.

test, completion : a test in which the student is required to supply the missing word (words) or part (parts) of a sentence, picture or numerical series.

test, disarranged sentence : a test in which the student is required to rearrange a jumble group of words so as to make a sentence (sentences).

test, essay : a test of the traditional type in which a student is required to describe, discuss, state, analyze, summarize, comment or criticize regarding a number of topics. (also see 'essay examination').

test, finger dexterity : see 'finger dexterity test'.

test, free-association : a psychological test in which a selected list of words is read out to a person who is required to respond instantly to each word he hears by speaking out words or phrases that first come to his mind.

test, Gates reading : see 'Gates reading test'.

test, group : see 'group test'.

test, Holmgren wool : a test for colour blindness in which a person is required to match correctly wool samples from a set of wool pieces of various colours and shades.

test, identification : a test used for checking scientific information or knowledge of map

location, in which the student is to identify or label certain designated parts in an illustration or to locate places or features in a map.

test, incomplete-man: a test of intelligence in which a child is required to indicate the missing parts in an incomplete picture of a man presented.

test, information: a test to find out a person's knowledge of facts.

test, ink-blot: a psychological test in which ink blots are reproduced on paper and a person is required to tell what each figure might be.

test, introversion-extroversion: a test to find out the degree to which a person tends to be an introvert or an extrovert.

test, linguistic: a test designed to measure comprehension and correct use of a language.

test, matching: an objective test of recognition in which the student is required to match or pair related items from two or more columns. It helps to measure the ability to associate cause and effect, term and definition, event and date, place or person, etc.

test, maze: a test in which a person is required to trace the most direct path to a goal through a figure maze containing several misleading paths.

test, mechanical-ability: see 'mechanical-ability test'.

test, mechanical-aptitude: a test designed to measure the potential ability of a person in successfully manipulating tools, machinery, and mechanical devices.

test, Meir-Seashore art judgment: see 'Meir-Seashore art judgment test'.

test, Minnesota mechanical assembly: see 'Minnesota mechanical assembly test'.

test, mixed relations: a type of analogies test in which the student is required to indicate the one term which is not consistent with the others in a series, as in automobile, helicopter, train, ship, television, bicycle.

test, multiple-choice: an objective test of recognition in which the student is required to make the correct choice from several suggested answers.

test, non-language: see 'non-language test'.

test, non-verbal: a test requiring no use of words either by the examiner in administering it or by the examinee in responding to it, e.g., a figure analysis test. It is commonly used in testing young children and illiterates.

test, objective: see 'objective test'.

test, oral: see 'oral test'.

test, parallel forms of: see 'parallel forms of test'.

test performance: see 'performance test'.

test, personality: a general term used for any one of the several tests designed to measure some aspects of a person's personality. It may be an attitude test, introversion-extroversion test, personality inventories, tests of emotional stability and social adjustment, etc.

test, physical-efficiency: a test designed to measure the effective operation of bodily co-ordination, physical fitness and endurance based, upon an individual's performance in a number of sub-tests.

test, power: see 'power test'.

test, prognostic: a test designed to predict one's probable success in a given field on the basis of present performance. Aptitude test is a type of prognostic test.

test, readiness: see 'readiness test'.

test, rearrangement: an objective test consisting of series of items jumbled in a random order to be rearranged in a correct or meaningful sequence as per instruction.

test, recognition: a test in which a person has to select the correct answer from a number of answers suggested. Alternate-response test, matching test, multiple-choice test, cause and effect test are all recognition test.

test, Rorschach: see 'Rorschach test'.

test, scholastic: a test devised to measure the achievement of a student in school subjects.

test, self marking: see 'self marking test'.

test, short-essay: a test consisting of a series of questions requiring brief written answers.

test, simple recall: an objective test of a memory type consisting of a series of direct questions to be answered by a single word or phrase recalled and written down, e.g.,
What is the capital of Denmark?
What is the specific gravity of iron?

test, situational: see 'situational test'.

test, sociometrie: see 'sociometric test'.

test, spiral: a test consisting of items differing in difficulty arranged in such a way that each successive sub-test is more difficult than the preceding one.

test, standardized: a test whose material has been empirically checked and whose norm, method of administering and scoring have been well established, so that its use ensures a relatively high degree of objectivity.

test, substitution: a test to measure intelligence in which a student is required to substitute certain symbols for others according to a code or key.

test, teacher-made: see 'teacher-made test'.

test, true-false: a type of alternative-response test consisting of a series of statements to be

marked either true or false.

test, Van Wageningen reading readiness : see 'Van Wageningen reading readiness test'.

test, verbal : a test requiring oral or written questions and answers, *i.e.*, involving language, oral or spoken or both.

test, work-limit : see 'work-limit test'.

test, work-sample : see 'work-sample test'.

testable hypothesis : a tentative assumption made for the guidance of an investigation towards some unknown fact or theory.

test battery : a group of several related tests designed to be administered in succession to the same subject or group of subjects and intended for use to measure a variety of abilities and aptitudes.

test item : the smallest unit of a test having a separate score for its performance.

test rating scale : a scale used in the evaluation of tests for specific uses.

test-retest reliability : a method of checking the reliability of a test by correlating the scores secured by the same person on two administrations of the test.

text-book : a book used as a principal source of study material for a given grade in a specific subject. It determines, enriches and supplements the curriculum. Text-books may be prescribed by the State, department of education, examining board, or school board or may be selected out of a list of approved books. No text-book can be totally self-sufficient. A good text-book encourages the use of other sources of information or supplementary books for augmenting, and reinforcing learning. Teacher's editions or teacher's guides are sometimes available to offer practical suggestions to the teachers for effectively using the text-books.

Textbooks, Committee on School (Ind.) : see 'Committee on School Text-books'.

theory, culture-epoch : see 'culture-epoch theory'.

theory, ding-dong : see 'ding-dong theory'.

theory, filtration : see 'filtration theory'.

theory, great-man : see 'great-man theory'.

theory, tabula rasa : see 'tabula rasa theory'.

theory, two-factor : see 'two-factor theory'.

theory, Young-Helmholtz : see 'Young-Helmholtz theory'.

theory of language : see 'language of theory'.

theory of unity : the doctrine expounded by Froebel that the soul of man is a manifestation of nature and therefore education should help man to know and appreciate nature, religion, and language in their mutual interaction.

theories of play : see 'play, theories'.

therapeutic counselling : the treatment of emotional problems and disorders by using verbal techniques.

therapy, client centred : see 'client centred therapy'.

therapy, group : see 'group therapy'.

therapy, play : see 'play therapy'.

therapy, rebase : see 'rebase therapy'.

therapy, shock : see 'shock therapy'.

therapy, situational : see 'situational therapy'.

therapy, supportive : see 'supportive therapy'.

therapy, surface : syn. 'therapy supportive'.

therapy, occupational : treatment for physical and mental rehabilitation by activity in creative and productive employment.

thesis : see 'dissertation'.

thinking, analogical : thinking based on the assumption that if two or more things are similar in some respects they may probably be similar in other respects.

thinking, conceptual : thinking based on concepts and abstract generalities instead of perception and imagination.

thinking, creative : thinking involving discovery and exploration of novel situations, original ideas and new solutions to old problems. It is constructive type of thinking.

thinking, critical : thinking that involves careful evaluation of a situation and thorough scrutiny of evidences, and proceeds to conclusion very cautiously after giving due weightage to every pertinent point.

thinking, directed : thinking directed along a particular line with some goal in view through the help of suggestions from others.

thinking, symbolic : thinking in terms of symbols as is used in the solution of problems in geometry and algebra.

Third Five Year Plan on education (Ind.) : see 'Plan on education, Third Five Year'.

third quartile : the point on a scale of values below which 75 percent of the cases fall. It is the 75th percentile.

Thomas Munroe's Enquiry (1882) : Munroe's enquiry into state of indigenous education in Madras which revealed that only one in 67 was receiving education. Thomas Munroe felt that it was essential in the interest of the British rule in India that some attention should be paid towards Indian education.

Thorndike's Laws of Learning : see 'learning, Thorndike's Laws of'.

three A's : age, ability and aptitude – a phrase taken from the statement of aims appearing in the 1944 Education Act of England.

three-track course of study : a course designed to provide instruction in the same area on three distinct levels for the superior, average and

inferior pupils in each class. It affords greater individualization of instruction.

thumb opposition: the act of using the thumb against the fingers for holding or picking things. The infants after the age of 5 or 6 months are able to use the thumb counter to the fingers.

thymus: a gland located in the lower part of the throat having its highest development at about the age of fifteen after which it gradually atrophies.

thyroid: a very important ductless gland located in the neck close to larynx.

thyroxin: a secretion given off by the thyroid. Its deficiency or excess seriously affects the personality or health of a person.

time-study habit: the habit of regularly studying at certain periods already set aside for it.

Tipitaka (Ind.): [lit., three baskets] Hinayāna canonical books, written in Pāli including the scriptures and commentaries and comprising three parts called *pitaka* or baskets (from the fact that the written palm-leaves were stored in baskets). These three parts are known as the *Vinaya Pitaka* concerning rules of conduct, the *Sutta Pitaka* concerning sermons, and the *Abhidhamma Pitaka* concerning metaphysics.

Tiruvorriyur Temple College (Ind.): a big college of grammar in Chingleput district located in a big hall adjoining to the Shiva temple which was established in the 13th century in memory of Pānini. It had more than 450 students with about 20 to 25 teachers. Education, boarding and lodging were free. The college flourished down to the 14th century.

tol (Ind.): a Sanskrit school. From early times *tol*s enjoyed grants of land which provided subsistence to the teachers and students. Where such grants are not available, necessary funds are raised through subscriptions at fairs and festivals and from charitable persons. Classes are usually held in a thatched house. About 25 students are enrolled in a *tol* which extends its course over 6 to 8 years preparing students for *Praveshikā* or admission examination in Sanskrit.

Tom Brown's School days: a book written by Thomas Hughes in 1857 giving a vivid picture of school-life at Rugby under Dr. Arnold's headmastership. It is a story of an ordinary schoolboy written with a didactic purpose and depicting schoolboy cruelties and loyalties. The book considerably influenced ideas on public schools.

tool: an instrument of a test used in measuring pupil behaviour.

tool subjects: subjects like reading, arithmetic

and spelling whose mastery consists mainly in the acquisition of skills and techniques useful in further learning.

topological psychology: see 'psychology, topological'.

total education: the education of the whole man covering every aspect of a person's personality—physical, intellectual, moral and spiritual.

touch method: a method of teaching the blind through the sense of touch in the acquisition of knowledge, as in finger reading and the interpretation of embossed material.

tournament, open: see 'open tournament'.

toys: Toys are used not only for play and enjoyment but also for motor and manual development and mental and social growth. Toys should be so prepared as to meet the needs of different levels of ability and types of interest. Some toys help to develop ideas of size, shape, weight, colour and some provide scope for imagination and construction. For older children toys involving mechanical construction and model building may prove interesting and challenging. While purchasing toys adults should be concerned more about a child's actual needs than what a child would like to have. Some children like to play alone and avoid company. These children should have toys that require participation of others, for it is necessary to develop social qualities in the young children in their early stage.

trained teacher: a teacher who has undergone a full course of professional education and holds a certificate, diploma or degree in education.

training, manual: see 'manual training'.

trait, character: see 'character trait'.

transfer: a general term for use and application of knowledge and skills to a new situation, though they were learned in another situation.

translation method: a method of teaching foreign languages in which the principal learning exercise is in the form of translating passages in the foreign languages into the vernacular, and *vice versa*, both orally and in writing. This method of teaching English in the country is gradually being discarded. The present tendency, is to use 'Structural approach' to the teaching of English.

transmigration [samsāra] (Ind.): see 'samsāra'.

transmutation: the process of changing any given variable from one basis to another, for instance, the changing of raw scores into standard scores.

tratak (Ind.): 'fixing' techniques for meditation. It is gazing fixedly at a small object, or fixing

the mind's eye on a certain point. It is said that different goals are achieved by concentrating on different objects or points called *lakṣha*. There are several methods of *trāṭak*, such as, fixing the eyes at a speck on a white wall without blinking till tears come, or on a mountain peak, or on the sun, or on the nose-tip, or at a spot between the brows, or gazing at a sacred picture, an image or the flame of a lamp. It is said that right concentration may help to know what is happening in different places, but such a practice is not free from dangerous effects.

Trinity College (Brit.): the largest college of Cambridge University founded by Henry VIII in 1546. Francis Bacon, Dryden, Newton, Byron, Macaulay, Thackeray and Tennyson are some of the eminent men educated in this college.

tripos (Brit.): Formerly the term was used for a bachelor of arts appointed to dispute with candidates for degrees at Cambridge, the word originated from the three-legged stool on which he sat. Now the term is used for the final honours examination in any subject for the B.A. degree at Cambridge University.

triple-benefit scheme (Ind.): a scheme consisting of (a) provident fund; (b) pension at one-fourth of the retiring salary; and (c) insurance; is generally operated for teachers working in aided educational institutions in India. It was first introduced in the State of Madras from April 1, 1954.

Triratna (Ind.): [lit., three jewels] a Buddhist term for the Buddhist credo: I go for refuge to the Buddha; I go for refuge to the *Dharma* (Doctrine); I go for refuge to the *Saṅgha* (order). It forms the basic profession of faith of Buddhism.

trivium: the three basic studies of the medieval curriculum, viz., rhetoric, dialectic and grammar. In Latin, the term means 'three ways'.

truancy: a deliberate absence of a pupil from school without the knowledge and permission of the school and the guardian. Truant is a student who absents himself from the school in such a manner.

true-false test: see 'test, true-false'.

true score: the value of an observation entirely free from error. It is also known as true measure.

Truths, Four Noble (Chatvari āry satyāni) (Ind.): see 'Chatvari āry satyāni'.

t-scale: a normalised standard score with a mean of 50 and a standard deviation of 10; also known as *t*-score.

t-test: a statistical test providing evidence for the acceptance or rejection of a null hypothesis; also known as Fisher's *t*.

Tughluq, education under Firuz Shah (Ind.): ruled 1351-1388. He was as good an administrator as he was bountiful, and greatly contributed to the material, cultural and educational welfare of his subjects. He had a high regard for learned men and spent large sums of money on the education of his subjects. His special interest was History, Art and Archaeology as is evident from his careful preservation of the Asoka pillars. It was an important part of his State policy to encourage learned men for imparting education to the people. He considered his duty to repair every public building of utility built by his predecessors, and schools and colleges had their fair share. Of the many colleges with *masjids* that he built, *Firuz-Shahi-Madrasah* was unique for its architectural beauty, management and learning where Maulana Jalaluddin Rumi, the master of many subjects, lectured on theology and jurisprudence and explained the commentaries on the Quran. It was a residential college where students and teachers were in constant communion. There was provision for stipend and every inmate received a fixed daily allowance for his maintenance. In his reign both Hindus and Mohammadans were learning each other's languages. His brilliant reign was followed by dark periods of 3 successive Sultans and the disaster caused by the formidable invasion of Taimur.

Tughluq, education under Muhammad (Ind.): ruled 1325-1351. During his reign the literary world underwent an eclipse. No doubt he was one of the most learned Sultans of Delhi, but his irascible temper and whimsical character had a chilling effect on the cause of literature. The capricious shifting of the capital from Delhi to Daulatabad caused utmost misery and snapped away Delhi's literary centre and left the schools and colleges deserted. What the Sultan did about the education of his subjects in the new capital is not known. After his death, Daulatabad lost its status and the literary world of Delhi stirred to recoup itself but could not get back its former glory.

tuition: the money charged by an educational institution for instructional work. It does not include laboratory fees, games fees, magazine fees and fees or funds for providing other educational facilities.

tuition fees in ancient India: Fees as a condition precedent to admission was vehemently condemned. No student could be refused

admission simply because he was unable to pay fees. The cause of education was a sacred one and it was the duty of a teacher to teach all qualified students free of charge. The students were required to help the teacher in his household and farm work in their spare time. There was, however, no objection to teacher accepting voluntary gifts from the guardians. Teacher's honorarium (*guru-dakshinā*) could be paid at the end of education but rich guardians used to pay in advance according to their ability. Buddhist universities, temple colleges and Mathas were imparting free education, and subject to sufficient endowments they were also providing free boarding, lodging, clothing and medical help to their students.

tutorial method : a method in which the teacher gives some assignment to a small group of students and suggests as to where materials may be found. The students are expected to study on their own for a specified time (one

week or more), write their paper and discuss with their tutors. The essence of the method is a face to face association between a highly learned tutor and an intelligent and greatly motivated student. The oldest tradition of this method is in the universities of Oxford and Cambridge where it still exists.

tutorial plan : a plan for providing individual guidance by assigning students to individual teachers in the colleges and universities.

two-factor theory : the theory that mental organization consists of a general factor 'g' and a specific factor 's'. This theory, later included a number of group factors of intermediate generality.

two-track course of study : a course of study designed to provide instruction in the same area on two distinct levels for the superior and other than the superior pupils in each class. It affords greater individualization of instruction.

U

udyoga-parva (Ind.) : [lit., preparation section] the fifth book of the Mahābhārata containing the preparations of the Pāndavas and Kauravas for war.

U.G.C. (Ind.) : see 'University Grants Commission'.

UICSM : see 'University of Illinois Committee on School Mathematics'.

Ujjain (Ind.) : once a great centre of learning. The inhabitants of Ujjain were said to be skilled in foreign languages, accomplished in letters, lovers of *śāstras*, and masters of all kinds of arts. Its fame attracted Shankarācārya who here defeated his opponent in a great debate. The city was also famous for the study of astronomy and it became the meridian for measuring longitudes of other places.

unconscious : according to depth psychology, a hypothetical region of the mind or psyche whose activities are hidden from direct conscious scrutiny and can be investigated by psychoanalysis, but the unconscious exerts a dynamic influence on a person's conscious activities and behaviour.

underachievement : academic achievement below the level of expectation based on previous academic achievement or general aptitude test.

underage : a term used for a pupil whose age is less than the normal age for that particular class.

undergraduate student (U.S.A.) : a student who is preparing for his first degree at an institution of higher learning (beyond the secondary school level). The undergraduate student is known as a Freshman (1st year), Sophomore (2nd year), Junior (3rd year), and Senior (4th year). A minimum of 120 semester credit hours or 184 quarter credit hours is usually required to complete work for the Bachelor of Arts (B.A.) or Bachelor of Science (B.S.) degree. A junior college offers only the freshman and sophomore year and awards the Associate of Arts (A.A.) or Associate of Science (A.S.) degree.

underprivileged children : those children who lack adequate benefits. These children may be classified on the basis of different factors such as children of rural areas, children of families having low incomes, children residing in slum areas, or children with mental, emotional or physical handicaps.

Unesco, aims of : Article 1 of Unesco Constitution reads : The purpose of the Organization is to contribute to peace and security by promoting collaboration among the nations through

education, science and culture in order to further universal respect for justice, for the rule of law, and for the human rights and fundamental freedoms which are affirmed for the peoples of the world, without distinction of race, sex, language, or religion, by the Charter of the United Nations.

Unesco, functions of : Article 1 of Unesco Constitution provides three main tasks for the Unesco (1) to collaborate in the work of advancing the mutual knowledge and understanding of peoples, through all means of mass communication ; (2) to give fresh impulse to popular education and to the spread of culture, and (3) to maintain, increase, and diffuse knowledge. This has led to three foci in its programmes : (1) international intellectual co-operation ; (2) operational action in the service of development; and (3) moral action. Unesco functions through three bodies : the General Conference, the Executive Board and the Secretariat. The General Conference meets every two years to adopt a programme and budget for the next biennium, while the Executive Board supervises the execution of the programme between Conference sessions. The Secretariat carries out the programme both at the headquarters in Paris and in the field.

Unesco, Indian National Commission for Co-operation with : see 'Indian National Commission, for Co-operation with Unesco'.

Unesco and educational planning : Since educational planning is an essential part of a country's overall planning for economic and social development, a large number of countries have requested help from Unesco in this matter. This has led to the establishment of an International Institute for Educational Planning in Paris in 1963. At the regional level financial and technical assistance is provided to a network of institutions for training in educational planning and administration at Beirut, Dakar, New Delhi and Santiago.

Unesco and literacy : For a long time Unesco has been providing technical assistance to different countries and operating the fundamental education centres for community development in Mexico for Latin America and in the U.A.R. for the Arab States. In 1965, Unesco convened a World Conference on literacy in Tehran and decided to include literacy in its planning missions. Unesco has now launched an experimental programme towards world literacy campaign. Five projects are already under way in Algeria, Ecuador, Iran, Mali and Tanzania. Unesco is also providing help to the African Institute of Adult

Education in Ibadan, Nigeria ; the East African Literacy Centre, Nairobi ; the Ecuadorian Literacy Centre, Quito ; the Venezuelan Institute of Adult Education at Caracas. It is also aiding two regional centres for education and community development in Latin America and the Arab States.

Unesco and school construction : Unesco has created regional school building centres, for Africa in Khartoum (1961), for Asia in Bandung (1962), now moved to Colombo (1966) and for Latin America in Mexico City (1963). These centres train technicians from various countries in the respective regions, and encourage research on designs, material and methods of construction on the basis of regional resources, requirements and conditions.

Unesco and school education : Unesco has been organizing a series of regional conferences since 1960 for the development of education. These conferences were held for Africa in Addis Ababa, Tananarive, Paris and Abidjan ; for Asia in Karachi, Tokyo and Bangkok ; for the Arab States in Beirut and Tripoli ; for Latin America in Santiago and Buenos Aires. These conferences helped the countries to first set their own goals and targets and then to survey and evaluate their progress made with the help, advice and assistance from Unesco. Great achievement has been recorded in the Unesco's campaign to extend free and compulsory education to all children of primary school age. Now efforts are being directed on secondary and technical education.

Unesco and teachers : Training primary school teachers is the main target of the major project for the extension of primary education in Latin America, begun in 1957, and the emergency aid programme for Africa, begun in 1960. Unesco with the help of the Special Fund is operating 19 advanced teacher training institutes in Africa and similar institutes in Afganistan and Saudi Arabia. In October 1966, Unesco convened a special inter-governmental conference and adopted a recommendation to Member States defining the professional, social and economic status of teachers, their rights and responsibilities. Unesco also helps in developing pre-service and in-service training for teachers by providing grants, carrying out experimental projects and organizing regional seminars at the Regional Training Centre for Primary Education Personnel at Bangui (Central African Republic) and the Asian Institute for the Training of Teacher Educators in Quezon City (Philippines).

Unesco Institute for Education : a centre

established by Unesco in Hamburg (Federal Republic of Germany) in 1951 to serve as 'a centre for contact between educators of different countries so as to enable them to compare and exchange without national, racial or cultural prejudice, their knowledge and experience in the various fields of education'. 'The International Review' is the Institute's quarterly journal published in English, French and German.

Unesco's Conference at Bangkok (1965): the Conference of Ministers of Education and Ministers responsible for Economic Planning of Member States in Asia, convened by Unesco with the co-operation of ECAFE and held at Bangkok from 22 November to 29 November 1965, to review the progress made in the implementation of the Karachi Plan since the Tokyo meeting in 1962. The conference also examined the document 'Perspectives of Educational Development in Asia: a Draft Asian Model', prepared by 5 consultants from Member States in Asia with the technical aid of the Secretariat. It recommended that the document be published after incorporating amendments, alterations suggested by the conference. (The document was published in 1966 by the Unesco entitled 'An Asian Model of Educational Development—perspectives for 1965–80'.)

Unesco's Conference of African States (1961): the Conference of African States on the Development of Education in Africa held in Addis Ababa from 15 May to 25 May 1961, organized jointly by Unesco and the Regional Economic Commission of the United Nations for Africa, underlined the importance of educational planning as a factor in economic and social development. It formulated recommendations relating to the different stages of the planning process as well as to the creation or strengthening of the requisite administrative machinery such as planning groups in the Ministries of Education, manpower boards and statistical services. In the light of these recommendations and of opinions of specialists, Unesco decided on ways and means of helping African countries in education planning.

Unesco's Conference of Arab Member States (1960): the Conference of representatives of Ministries of Education of Arab Member States of Unesco on the Needs for Educational Development held in Beirut from 9 February to 13 February 1960 where the various participating countries recognized that many of their educational problems were common to them all and they could be resolved by a co-operative

effort in educational planning. They considered it desirable to establish, with the help of Unesco a centre for the advanced training of senior personnel and also educational planning units in the Arab countries. Accordingly, a Regional Centre for the Advanced Training of Senior Educational Personnel was established in Beirut (Lebanon) under the Unesco programme.

Unesco's Conference on Education and Economic and Social Development in Latin America (1962): a Conference held at Santiago (Chile) from 5 to 19 March 1962, and attended by Ministers of Education, Under Secretaries and other delegates from Latin America 'to define both the present degree of educational development in the various Latin American countries and the progress made in planning its future expansion'. The conference was organized by Unesco, ECLA and OAS, with the assistance of ILO and FAO. The conference recommended that each country should formulate educational development programmes integrated with over-all economic and social development plans and should devote to education the maximum economic resources and that Unesco should explore the possibility of establishing an International Fund for Education in Latin America.

Unesco's International Institute for Educational Planning: see 'International Institute for Educational Planning'.

Unesco's Meeting of Ministers of Education in Tokyo (1962): the Meeting of Ministers of Education of Asian Member States participating in the Karachi Plan, held in Tokyo from 2 April to 11 April 1962, which reviewed the progress made and problems encountered in implementing the Karachi Plan for the establishment of universal, free and compulsory education of at least 7 years' duration for all children of Asia by 1980. The Karachi Plan was examined with reference to each country's overall educational and national development plans and sources for external aid were explored. It decided that the plan should be extended to cover all levels of education. The meeting requested Unesco in co-operation with ECAFE to aid member States in the task of 'establishing long-term educational perspective plans and in putting together these national plans into a draft Asian Model which we will examine when we meet again in December 1965'.

Unesco's Meeting on Educational Planning (1966): the Meeting of Experts on Educational Planning in Asia convened by Unesco and held at Simla from 16 May to 28 May, 1966, to

study the training and research needs of administrators and planners.

Unesco's Regional Conference on Free and Compulsory Education in Latin America (1956): a conference held in Lima whose recommendations constituted the starting point for the Major Project on the Extension and Improvement of Primary Education in Latin America, approved for a ten-year period (1957-1967) by the ninth session of Unesco's General Conference.

Unesco's Regional Conference on Free and Compulsory Primary Education in South Asia and the Pacific (1952): a regional conference convened by Unesco and held at Bombay in December 1952 for South Asia and the Pacific with the two objectives of (1) locating the major needs and problems of this region regarding the provision of compulsory primary education, and (2) mobilizing the resources of the Member States and enlisting the assistance of international organizations for meeting these needs and solving these problems. This conference began a series of regional conferences on compulsory education which continued with the conference for the Arab States held in Cairo in December 1954-January 1955 and concluded with a third regional conference on compulsory education in Latin America held at Lima, Peru, from 23 April to 5 May.

Unesco's Regional Meeting on Primary and Compulsory Education (1959-60): the Regional Meeting of Representatives of Asian Member States on Primary and Compulsory Education, held in Karachi from 28 December 1959 to 9 January 1960 to study and deal with problems in providing free and compulsory primary education, in pursuance of a resolution adopted by the General Conference of Unesco in 1958. A working plan for the region was drawn up as a reference document for use of national governments in working out national plans. This plan is titled 'The needs of Asia in primary education; a plan for the provision of compulsory primary education in the region; and is commonly known as *'Karachi Plan'*. The plan suggested ways in which internal and external resources could be combined to provide free primary education for at least 7 years to about 20% of the total population of Asia by the end of 1980.

Unesco's Regional Seminar on Educational Reform in South and East Asia (1958): a regional seminar held in New Delhi to study specific problems on educational planning and administration. The seminar recommended that a survey of the progress

accomplished so far should be undertaken with a view to planning a more comprehensive and better co-ordinated drive for the promotion of education in this area. In pursuance of the recommendation a survey was undertaken and its results were placed at the disposal of a Regional Meeting of Representatives of Asian Member States on Primary and Compulsory Education, held at Karachi from 28 December, 1959 to 9 January, 1960, a real landmark for regional educational projects in Asia.

Unesco's Regional Symposium on Overall Educational Planning in Asia (1962): a symposium held in New Delhi from 29 January to 23 February 1962, and attended by 16 member States. Its objectives were: to identify educational problems particularly acute in Asia and deserving special attention in planning, to study the planning services, and to draw up the programme, both of training and research, for the Asian Institute of Educational Planning and Administration.

Unesco's Seminar on Planning Adult Literacy (1966): the Seminar on Planning Adult Literacy in Asia convened by Unesco and held at Simla from 6 June to 25 June 1966 as a follow-up of the World Conference of Ministers of Education on the Eradication of Illiteracy held in Tehran in September 1965. Discussions were on 'functional literacy' and practical ways of linking this new technique with overall plans of economic and social development.

Unesco's World Conference on the Eradication of Illiteracy (1965): the World Conference of Ministers of Education on the Eradication of Illiteracy held in Tehran from 8 September to 19 September 1965 under the sponsorship of Unesco. It was attended by delegates from 87 countries who examined the problem of mass illiteracy and plan for its eradication, and made recommendations for the improvement of literacy work. It was at this conference that the concept of functional literacy was accepted.

ungraded room: a term used for one room rural school. Classrooms for children of low academic ability, are also called ungraded.

ungraded school: a school where students of different ages, abilities and achievements are not classified according to different classes or grades but where instructions are provided on an individual basis, so that the individual rate of progress is not impeded by grade restrictions.

United States Office of Education (U.S.A.): a Federal office whose main functions are:

collection and publication of educational information and statistics, educational research, advisory service to school systems and educational organizations, conduct of Federal educational projects, administration of Federal grants-in-aid to education. The executive head of the U.S. Office of Education is the United States Commissioner of Education.

unit technique of planning instruction: a technique of preparing unit plans as opposed to the old system of organising daily lesson plans rigidly, a good unit consists of a comprehensive series of related and meaningful activities providing significant educational experiences and resulting in desired behavioural changes. The term 'unit' implies more than one thing. It is referred to units of learning, units of instruction, units of adaptation, units of understanding, subject matter units, experience units, and the like.

Universal Copyright Convention: a convention based on a draft International Convention sponsored by Unesco with a view to creating a bridge between the Berne Copyright Union and the Pan-American countries.

universities: the name university comes from the latin word 'universitas' which was adopted about 1400 A.D. as an abridgement of the full name 'universitas magistrorum et scholarium' meaning a whole body of masters and scholars. This body of teachers and students pursued the higher branches of knowledge in a particular place. Bologna and Paris could properly be called the earliest universities in the West. Oxford University probably came into being in the 12th century, and Cambridge in 1209 as a result of migration of students from Oxford.

universities, ancient Indian: see 'Jagaddala', 'Kanchi', 'Kashi', 'Mithila', 'Nadia', 'Nalanda', 'Odantapuri', 'Taxila', 'Ujjain', 'Vallabhi', 'Vikramashila'.

Universities, Indian: In 1857, Universities were established by Acts of the legislature for each of the three presidencies: Bengal, Bombay and Madras. The Governor-General of India and the Governors of Bombay and Madras were the respective chancellors. The Punjab University was incorporated in 1882 and Allahabad in 1887. During 1969-70, there were 76 universities and 10 institutions deemed to be universities under section 3 of the University Grants Commission.

universities or centres of learning, ancient (Ind.): see 'Jagaddala', 'Kanchi', 'Kashi', 'Mithila', 'Nadia', 'Nalanda', 'Odantapuri', 'Taxila', 'Ujjain', 'Vallabhi', 'Vikramashila'.

university, affiliating: see 'affiliating university'.

university, teaching: see 'teaching university'.

university and collegiate education (1902-1921) (Ind.): The Government Resolution on Educational Policy dated 21st February, 1913, declared that a university would be established for each province. The Calcutta University Commission or the Sadler Commission (1917-1919) made far-reaching recommendations not only with respect to Calcutta University but also with respect to university education in general. The number of universities increased from 5 in 1916 to 12 in 1921-22. Government grant to universities increased manifold. The number of students going in for arts and science courses of the Indian Universities increased by over 200 percent in twenty years between 1901-02 and 1921-22. However, this increase in number was almost purely literary in character and unhelpful for the industrial and commercial regeneration of the country.

university and collegiate education (1921-1937) (Ind.): As a result of the first All India Conference of Indian Universities held at Simla in 1924, the Inter-University Board came into being in 1925 for the coordination of the work of Indian Universities. The number of University Departments and constituent or affiliated colleges increased from 207 in 1921-22 to 446 in 1936-37 and the number of students from 66,258 to 1,26,228.

university and collegiate education (1937-1947) (Ind.): Several new colleges were opened, four new universities were established, and there was a substantial increase in the enrolment and activities of the universities and colleges during this period. The large expansion of university education was primarily due to the Second World War and a general awakening among the people due to Quit India Movement. The country did not get the maximum benefit from this rapid expansion of university education as the turn-over of trained personnel in scientific, technical, agricultural or professional fields was far from adequate to meet the needs of the country.

university and collegiate education (after 1947) (Ind.): The setting up of the University Education Commission under the chairmanship of Dr. S. Radhakrishnan in 1948 was the most important and the earliest decisions of the Government of India in the post-independence period. The report of the Commission submitted in 1949 has been considered to be an educational document of great significance which has been guiding the programmes of

university education during the last twenty years. In accordance with the recommendations of the Radhakrishnan Commission a University Grants Commission was set up in 1953. The main responsibility of the commission is to co-ordinate and maintain standards. The Scientific Policy Resolution of the Government of India issued in March 1958 states the aims of national scientific policy. The Rural Higher Education Committee appointed under the chairmanship of Dr. K.L. Shrivastava recommended the establishment of Rural Institutes. The number of universities at present is 76. Besides there are 10 institutions 'deemed to be universities'.

university education (1854-1902) (Ind.): The University Acts of 1857 established universities at Calcutta, Bombay and Madras. Indian Universities (Degrees) Act was passed in 1860 which empowered the universities to confer such diplomas or degrees or licences as approved by the bye-laws or regulations. The Universities (Honorary Degrees) Act in 1884, empowered the three universities of Calcutta, Bombay and Madras to confer the Honorary Degree of LL.D. The Punjab and Allahabad Universities were established in 1882 and 1887 respectively. The report of Indian Education Commission did little to improve university education. Lord Curzon appointed the Indian Universities Commission (1902) to inquire into the condition and prospects of the universities established in British India and to consider proposals for their constitution and working. The commission adopted the model of the London University as modified by the Act of 1898. The Indian Universities Act, 1904 introduced many changes in the universities which in general were not liked by the Indians.

University Commission, Calcutta (Ind.): see 'Calcutta University Commission'.

University Education Commission (Ind.): a commission appointed by the Government of India on November 4, 1948, under the chairmanship of Dr. Sarvapalli Radhakrishnan 'to report on Indian University Education and suggest improvements and extensions that may be desirable to suit present and future requirements of the country'. The commission, submitted a very comprehensive report (1950) covering almost every aspect of university education. It included constitution, control, functions and jurisdiction of the universities; their relations with Governments, Central and Provincial; their finance; the maintenance of the highest standards of

teaching and examination and a sound balance between the humanities and the sciences; the medium of instruction, the organization and coordination of advanced research; religious education; the teacher's qualification and conditions of service; and the maintenance of discipline among students. It is sometimes referred to as 'the Radhakrishnan Commission'.

University Grants Commission (Ind.): [usually abbreviated to U.G.C.] a statutory body established in 1956 for the purpose of allocation and disbursement of grants to universities and responsible for co-ordination and maintenance of standards of the universities.

University Grants Committee (Brit.): a committee established in 1919 for the purpose of allocating and distributing government grants to universities. The committee is an autonomous body consisting of experts and prominent men familiar with the work of universities, and thus government control of universities is avoided.

University of Illinois Committee on School Mathematics: [usually abbreviated to UICSM] a committee initiated in 1952 in the university of Illinois. Dr. Max Beberman has provided leadership to this committee engaged in activities involving classes or grades nine to twelve. This programme has been one of the early pioneers to introduce modern mathematics into the high school. Both inductive and deductive heuristic methods are used in the extensive research conducted by the UICSM, which calls these methods as 'discovery'.

unstructured technique: a projective method of personality measurement which allows the respondent wide freedom in his manner of responding.

unverbalized awareness method of Hendrix: an inductive discovery method used by Gertrude Hendrix for transfer of training, in which instances of the item of knowledge are presented and the students are made aware of the inferences, but the verbalization of such inferences is delayed. From the findings of her study she concluded that the unverbilized awareness method of learning a generalization is better than a method in which an authoritative statement of the generalization comes first, and that the key to transfer of knowledge is a sub-verbal, internal process.

upadhyaya (Ind.): The word is defined by Manu as one who initiates a pupil and teaches only a portion of the *Vedas* or the *Vedic Angas*, for a fee or for his livelihood. Generally, he provided only supplementary instructions to

pupils temporarily admitted, and he is lower in the hierarchy than an *āchārya*. In Buddhist education, an *upādhyāya* held a rank higher than that of an *āchārya* and was responsible for the studies, health, morals and spiritual progress of a group of young monks.

Upanayana (Ind.): [lit., introduction of the pupil] a ritual or ceremony performed for a formal and regular introduction of a pupil to *brahmacharya*, the student life. It marked the beginning of the Vedic education for which some age between 8 and 12 was regarded suitable. The defaulters of *Upanayana* suffered complete social boycott. It implied the society's concern to make education universal and compulsory among the first three castes *Brāhmans*, *Kshatriyas* and *Vaishyas*—who were collectively called '*Dvijas*' meaning 'twice-born', as they were believed to get a second birth, a spiritual one through *Upanayana*. The student properly dressed and wearing the *yajñapavita*, the sacred thread, was committed to the charge of the gods with prayers, after which he was made to stand on stone as a symbol of steadfastness at study. Thereafter, the formal acceptance of the pupil was made.

Upanishad (Ind.): philosophical treatises which were the last development of the *Brāhmana* text and were embodied in *Aranyaka* of *Vedas*. The term literally means 'sitting-near', as they were discourses delivered to selected students who could sit near their *gurus*. Though the speculations of the *Upanishads* comprise several doctrines, yet the main purport is the identity of the individual soul with the Universal Soul or *Brahma*. Essentially they constitute an enquiry into the incomprehensible nature of *Brahma*. They represent a reaction from the priestly ritualism of the *Brāhmanas* and they have overwhelmingly influenced every school of Indian philosophy. There are said to be 108 *Upanishads*, the most popularly known are *Aitareya*, *Kausitaki*, *Chhândogya*, *Kena*, *Bṛihadāranyaka*, *Isha*, *Taittiriya*, *Shvetāshvatara*, *Maitrāyaṇi*, *Katha*, *Mundaka*, *Māndūkya* and

Prashna. In general, the *Upanishads* proclaim salvation through knowledge and realization rather than through faith or work.

Upanishad-Shutra period, education during the (Ind.): (C. 1200 B.C. to 200 B.C.) With the extensiveness of Vedic literature, complexity of rituals and the growth of new branches of learning, the professional teacher became a special feature. Students in a small number were required to live with the teacher at his own house as the members of his own family under a system of rules and regulations governing their life and studies for a period of twelve years. No fee was charged. The students were, however, required to help the teacher in his household and farm work in his spare time. Correct memorization and proper pronunciation was emphasized. Much attention was paid to female education and women scholars like *Maitreyi* and *Gārgi* and a regular class of women teachers appeared during the first half of this period. Female education, however, received a set back by 500 B.C., one of the factors being the gradual lowering of marriage age. It was laid down that every householder during the monsoon period should devote to the recapitulation of his past learning. Profession education on a hereditary basis was carried on. This was a creative epoch characterized by the development of metaphysics, philology, grammar, astronomy, mathematics, medicine, metallurgy and of philosophic and political thought.

upper school (Can.): the name used in Ontario for the fifth and final year of the secondary school, i.e., the XIII grade.

use, principle of: a principle of learning that knowledge and skills are strengthened and retained when in use; correspondingly, the retention is weakened when knowledge and skills are not used.

uttara-kanda (Ind.): [lit., the later section] the seventh and last book of the *Rāmāyana* containing the banishment of *Sitā*, the birth of her two sons named *Lava* and *Kush*, reunion with *Sitā* and *Sitā*'s death.

V

vadya (Ind.): musical instruments. They may be divided into five classes: (1) *Tata*, stringed instruments played with the bow, including *ektāra*, *esrāj*, *sārangi* and *dilrubā*; (2) *Betat*,

stringed instruments played by plucking the strings with fingers or a plectrum, including *vinā*, *sarod*, *sitar*, and *tamburā*; (3) *Sushira*, air blown instruments, including *shrīngā*,

bhānsuri, *shahnūi* and *shankha* ; (4) *Dhola*, drum like instruments of great variety including *damru*, *dholak*, *mridanga*, *pakhwāj*, *dundubhi*, *bheri*, *nakāra*, and *tablā* ; (5) *Ghana*, metallic percussion instruments, including *ghantā*, *ghumgrn*, *mūpura*, *manjirā*, *chimtā* and *jala-tarang* (glass bowls filled with water and beaten by two sticks).

Vaisheshika (Ind.) : one of the six orthodox schools of Hindu philosophy said to have been founded by Uluka-Kanāda. It was complementary to *Nyāya*. Its basic teaching was that nature is atomic. Atoms are distinct from the soul, and thus a dualism of matter and soul is established. Salvation depends on fully recognizing the atomic nature of the universe and its difference from the soul.

Valabhi (Ind.) : an ancient university, rival of Nālandā, situated in West India at Valabhi, the capital of Maitraka kings during 5th to 8th centuries. It specialized in *Hinayāna* as Nālandā in *Mahāyāna*. Like Nālandā, Valabhi attracted students from all parts of India. Once the famous scholars Sthiramati and Gunamati were in charge of the monastery at Valabhi. Besides purely religious studies, the university provided secular studies like *Dharma*, *Niti* and *Chikitsā Shāstras*.

valence : the characteristic of an object or goal in a total situation due to which the object is either sought (which indicates a positive valence), or avoided (which indicates a negative valence).

valence of attitude : the degree of positivity or negativity of the action tendency of an attitude system.

validity : the extent to which a test or other measuring instrument fulfils its purpose, or measures what it intends to measure.

validity coefficient : a coefficient of correlation used to express the validity of a test.

Vana-parva (Ind.) : [lit., forest section] the third book of the *Mahābhārata* containing the Pāṇḍavas in Kamyaka forest ; adventures of Arjuna ; several extraneous episodes woven into the epic like the stories of Nala and Damayanti, Sāvitrī and Satyavān and the narration of Rām.

Vanaprasthya (Ind.) : the third of the four stages into which the life of an individual was divided. (also see 'āshrama'.)

Vanasthali Vidyāpīṭh (Ind.) : an institution named after Vanasthali, a small township situated 70 km. away from Jaipur, established for the free education of girls keeping in line with India's culture. Vanasthali Vidyāpīṭh is an institution of all India importance which

has achieved the status of a university. Education is free from nursery to the post-graduate classes.

vandalism : ruthless destruction or defacement of property. School vandalism may include scratching, writing, or carving on desks, cutting or tearing off pages and illustrations, from library books, drawing pictures or writing words of obscene nature on walls or toilets, and defacing school building and other school property. Gang spirit, desire for adventure or fun and revenge may be the motivating force. Developing a sense of property rights and a feeling that the school belongs to them, sublimating the 'gang' spirit providing recreation and opportunities for better use of leisure, creation of healthy sex attitudes and better supervision might help to prevent some cases of vandalism.

Van Wageningen reading readiness test : a test published by the *Betts Reading Clinic*, Haverford, Pennsylvania, designed to measure ranges of information, perception of relations, vocabulary, memory-span for ideas, word discrimination and word learning.

variability : the tendency to change ; the extent to which a series of observations deviate from some measure of central tendency.

variable : a trait or factor that may change or be different in individual cases.

variable error : the deviation of a measure from the true score that results from the tendency of persons to vary in their judgments from time to time. This error arises from small uncontrolled factors of observation that occur unsystematically.

variance : a measure of variability expressed as the square of standard deviation. It indicates the extent each individual score differs from one another.

Vedāṅgas (Ind.) : [lit., limbs of the *Veda*] subsidiary subjects or sciences necessary for the proper understanding of *Veda*. The six *Vedāṅgas* consisted of *Kalpa* (the science of performance of sacrifice), *Shikshā* (the science of pronunciation or phonetics), *Chandas* (metre and prosody), *Nirukta* (the interpretation of obscure words or philology), *Vyākaraṇa* (grammar), and *Jyotiṣa* (astronomy). The *brahmachārī* in the *āchārya*'s home did not confine his attention wholly to the Vedic texts, he had also to master the *Vedāṅgas*.

Vedānta (Ind.) : [lit., the end of the Vedas] one of the six orthodox schools of Hindu philosophy, based on the *Upanishads*. It is still a living school. Swami Vivekananda, Sri Aurobindo, and Sarvapalli Radhakrishnan

are all *Vedantists*. It teaches that the purpose of existence is not release but realization, which comes through knowledge. Man's duty is to become one with the Real and not to free himself from the Real. *Vedānta* is a monistic creed. It is summed up in great sayings, such as, '*Aham brahmāsmi*' (I am *Brahma*), '*Tat tvam asi*' (You the individual are that Universal Essence), and '*Evam evāvīṭiyam*' (One essence and no other). The *Purusha* (spirit) and the *Prakṛiti* (matter) of *Sāṅkhya* lose their separate entity and become merged into a single Reality.

Vedas (Ind.) : the primary scriptures of Hinduism consisting of the four earliest religious compilations, viz., the *Rigveda*, the *Yajurveda*, the *Sāmaveda* and the *Atharvaveda*. The *Rigveda* is the oldest book of India containing 1028 hymns related to religious and sacrificial matters, philosophy and pure poetry. The *Sāmaveda* may be considered as a book of songs and the *Yajurveda* as a book of prayers for the purpose of ritual application. The *Atharvaveda* has much original matter on medical speculations but still subserving the ends of religion. The *Vedas* were composed in an archaic form of Sanskrit known as *Vedic* and were handed down orally through a succession of teachers. Even after the introduction of the alphabet, its preservation in written form was not encouraged. The word *Veda* is from root '*vid*' which means 'to know' and it implies that through the *Vedas* one can obtain the knowledge of the ways and means of realizing the spiritual ends.

Vedas, women scholars mentioned in the (Ind.) : see 'women scholars mentioned in the Vedas'.

Vedic language (Ind.) : the language in which the *Vedas* were composed, a predecessor of Sanskrit from which it differs noticeably in the field of grammar and vocabulary, but very little in phonetic structure. The development of Vedic and Sanskrit may broadly be divided into four stages : (1) Early Vedic stage, the language of the older part of the *Rigveda* ; (2) Later Vedic stage, the language of the younger part of the *Rigveda* and that of the *Atharvaveda* (1000-700 B.C.) ; (3) Early Sanskrit period, the language of the *Brāhmanas*, *Upanishads* and *Sutras* (700-400 B.C.) ; and classical Sanskrit period starting from about 400 B.C., when the great grammarian Pāṇini standardized the form of Sanskrit.

Vedic period, education during the (Ind.) : (upto about 1000 B.C. when most of the Vedic literature was composed) Every person male or female was required to undergo the discipline of *Brahmacharya* when one was initiated

into the sacred literature. The beginning of education was marked by a ritual called *Upanayana* ; it was considered a second or spiritual birth. Great stress was laid on the individual's capacity to memorize, recite and explain the religious hymns, on creative intellect, on debating power and on developing a spirit of enquiry. Since education was not yet so complex in most early societies it was the father who used to educate his children. The education system produced youths and maidens properly grounded in religious literature, strong in intellect and efficient in their family profession.

verbal diversification : the extent to which a person makes use of different words and different sentence patterns in his language.

verbal test : see 'test, verbal'.

vice-chancellor : the chief executive and academic officer of a university.

Vidyarambha (Ind.) : [lit., commencement of learning] a ritual or ceremony at which a child who had attained his fifth year was to commence the learning of the alphabets for the first time. The child was required to offer worship to Sarasvati, the goddess of learning, and to the tutelary deities of his family. The worship of the deities was followed by that of the primary teacher who used to make the child write alphabets. The ritual was unknown in the Vedic or Upanishadic period, as alphabets were then probably unknown and education commenced with the memorizing of the sacred hymns. It originated in the period of *Sutra* literature.

Vidyas, Fourteen (Ind.) : [lit., vidyā=subject of study, knowledge] In the Paurāṇic period, roughly 500 A.D. to 200 A.D., to become a distinguished scholar one had to master fourteen *vidyās* or subjects of study. These were usually taken to mean the four *Vedas*, the six *Vedāṅgas*, *Dharmashāstra*, *Purāṇas*, *Mīmāṃsā*, and *Tarka*.

vihara (Ind.) : a type of Buddhist monastery organized by the federation of individual educational groups of schools. Brāhmanical system depended upon isolated individual schools at the home of teachers, the Buddhist system consisted of confederations of such schools in monasteries, promoting a wider collective life. Besides the common regulations binding on all groups there were special rules to maintain the harmony of relations between different groups. Some of the *vihāras* developed into true universities like those of Nālandā, Taxilā, Sārnāth and Amrāvati. The two bases of monastic life were celibacy and poverty.

Vijñan Mandir Scheme (Ind.) : a scheme for

establishing a chain of rural scientific centres, known as Vijnān Mandirs, initiated by the Council of Scientific and Industrial Research in 1953, with the object of educating the rural people in the methods of science and meaning them familiar with the scientific principles involved in daily life. The Vijnān Mandir provides its museum with a collection of local flora and fauna, minerals and soil, and helps to organize rural science clubs for dissemination of elementary scientific knowledge to the people.

Vikramashila (Ind.) : a monastic university founded by King Dharmapāla in the 8th century, situated on a hillock on the bank of the Ganges in Bihar. It was surrounded by a strong wall with six gates opening on its six colleges each having a staff of 108 teachers. Portraits of eminent Pandits were painted on the walls of the university, that of Nāgārjuna adorned the right of the main entrance and that of Atisha the left. There were 6 *dhvāra-panditas*, the most erudite scholars, at the 6 gates to examine the candidates for admission, probably they were the six principals of the six colleges collectively forming the Managing Board presided by the high-priest. The great achievement of this university lay in the quality and quantity of its output. Among its distinguished presidents were Buddha-Jñāna-Pāda, Dipankara Shri Jñāna (Atisha) and Jñāna Shri Mitra. Many great men and scholars of this university made profound contributions to knowledge and religion by their numerous writings and were invited to foreign countries, chiefly Tibet, for spreading learning, culture and religion. Unfortunately, the university was completely destroyed by the invasion of Bakhtyar Khilji.

Vinaya Pīṭaka (Ind.) : see 'Tipitaka'.

Virāṭa-parva (Ind.) : 'Virāṭa section', the fourth book of the *Mahābhārata* containing the thirteenth year of exile in which the Pāṇavas served King Virāṭa in disguise.

viscera : the internal organs in the large cavities of the body, such as the stomach, heart, intestines and liver.

visitation, class : visiting a class for the purpose of observing a teacher's work as he teaches the class. This type of visit is carried on by the supervisory authorities and principals. A teacher may also visit the classes of other teachers for mere observation that would help improving his own teaching or learning new teaching techniques.

visiting counsellor : a counsellor responsible for a number of schools in a locality where he works usually with the assistance of a career master

and cooperation of other staff members.

visiting days : days set aside specially for parents and others for visiting the school, generally on the occasion of Annual Day, Prize Distribution Day, Parent-Teachers Conference or Education Week.

visual aid : any device to supplement regular instruction or to stimulate learning process through the sense of sight, like pictures, photographs, models, slides, motion-pictures, etc.

visual difficulty : a deficiency occurring in the normal use of the eyes which interferes with reading or writing.

visual fatigue : a fatigue of the eyes due to improper illumination, long hours devoted to close work, strain resulting from defective eye-sight, etc.

visual-motor method : a method of teaching reading in which a student first sees the word clearly, and then pronounces it and writes it down.

Visva-Bharati (Ind.) : a university which has grown out of the Santiniketan Asrama founded in 1863 by Rabindranath Tagore's father, Maharshi Devendranath Tagore. It was founded and endowed by Rabindranath Tagore and formerly inaugurated in 1921, with the objective of bringing the wealth of ancient learning into living contact with modern influence and of seeking to realize in a common fellowship of study the meeting of the East and the West. In the words of Tagore, 'Visva-Bharati acknowledges India's obligation to offer to others the hospitality of her best culture and India's right to accept from others their best. Its motto is *Yatra Visvam Bhavatyekanidam* (where the world makes its home in a single nest). In 1951, it was declared an institution of national importance and was directly administered by the Government of India. Jawaharlal Nehru was the first *Āchārya* (Chancellor) of Visva-Bharati (the International University). It attracts students from different parts of Asia and Europe.

vitalism : the theory that a living principle is behind all life processes, which is much more than what physical and mechanical principles can explain. This living principle was emphasized by Bergson by the term 'élan vital' or vital force.

vocabulary, active : words and idioms used in speech and thinking, as distinguished from words which are only recognized and are not in active use.

vocabulary, basic : the minimum number of words and idioms that are considered a must for the rudimentary use of a language.

vocabulary, graded : words and idioms that have been evaluated, classified and listed for the respective use of different classes or grades.

vocabulary, passive : words and idioms which a person understands but never or hardly uses while speaking or writing.

vocabulary, potential : words and idioms which a person does not know but can interpret in a contextual reference on the basis of his knowledge, experience and intelligence.

vocabulary, recognition : words and idioms which a person can recognize as having read or heard earlier, but which he is not able to use in his speech or writing.

vocabulary, research on teaching : after the student's reasonable mastery over the sound and structure of a language, his knowledge of the language grows according to his increasing knowledge of the vocabulary. The teacher is naturally concerned to know the rate of introducing vocabulary at the various stages of learning. Frequency counts and other statistical information are available in many foreign languages to determine vocabulary control, but text-books reflect varying opinions. There may be various ways to measure the rate of vocabulary-introduction, including the way to measure the number of new words per instructional hour. Research is needed to guide regarding the number of hours required to master a certain size of a vocabulary through a certain manner of study. Experiments have yet not given the final answer whether vocabulary is best learned in word-

meaning paired tests, or in contexts, though the latter has been found beneficial when it succeeds in creating meaningful associations. Experiments have also been conducted to find out whether the use of pictures, or expressing meaning in mother-tongue, or pointing to real objects successfully conveys the meanings of foreign words. In most cases the method of pairing the new words with appropriate picture has been favoured. There is, however, no proof that the use of mother tongue inhibits the learning of the foreign words and their meaning.

vocabulary, speaking : words and idioms which a person commonly uses in conversation.

vocalization, inward : 'voicing' of words mentally in silent reading.

vocalization, outward : sounding of words aloud in oral reading.

vocational counselling : interviewing a person to assist him in problems pertaining to his choice of occupation, necessary training, and employment.

vocational guidance : it means the assistance of the child and his parents in choosing a suitable vocation for the child by means, and on the basis, of a systematic procedure involving intelligence tests, educational tests, special aptitude tests, school records, etc.

vocational interest inventory : see 'Cleeton's Vocational Interest Inventory'.

vocational, maladjustment : see 'maladjustment, vocational'.

W

wants : the initiating and sustaining forces of behaviour. A want which impels a person towards the achievement of a goal is a positive one, and that which repels a person away from certain objects or conditions is a negative one.

Wardha Education Committee (Ind.) : a committee appointed in 1937 under the chairmanship of Dr. Zakir Husain, the then Vice-Chancellor of Jamia Millia Islamia, Delhi. The committee was set up by the All-India National Education Conference, popularly known as the Wardha Education Conference, held at Wardha in 1937 and presided over by Mahatma Gandhi to formulate a scheme of Basic Education on the lines suggested by its resolutions.

The committee submitted its report on 2nd December, 1937. This report is known as the Wardha Scheme and provides a complete outline of the scheme of Basic Education. The main features of the scheme are (1) Free and compulsory education for seven years, from 7 years of age to 14; (2) Mother-tongue to be the medium of instruction; (3) Education to be self-supporting; (4) Education to centre round some craft.

Wardha Education Conference (Ind.) : an All-India National Education Conference popularly known as the Wardha Education Conference, held in 1937 under the presidentship of Gandhiji. Educationists present in the conference passed

the following resolutions : (1) That free and compulsory education be provided for seven years on a nation-wide scale ; (2) That the medium of instruction be the mother tongue ; (3) That the process of education throughout this period should centre round some form of manual and productive work ; (4) That the conference expects that this system of education will be gradually able to cover the remuneration of the teachers. The conference then appointed a committee under the chairmanship of Dr. Zakir Husain, Principal and Vice-Chancellor of the Jamia Millia Islamia, Delhi, to formulate a scheme of Basic Education on the lines suggested by its resolutions.

wastage : the term used to imply the infructuous expenditure of time, energy and resources on the students who prematurely withdraw from schools. In the primary stage it is measured by comparing the total number of students enrolled in class I in a given year to the total number of students reaching class IV in 4 years or class V in 5 years, whichever be the final year of the primary stage.

Wherry Doolittle Method : a method of selecting a small number of tests with the purpose of making selection of people for some particular assignment.

whole method : the method of learning a poem or a musical selection as a whole as opposed to learning by parts or sections.

whole vs part learning : see 'learning, whole vs part'.

Winnetka Plan (U.S.A.) : a plan named after Winnetka, in Illinois, aiming at individualizing instruction in an elementary school by defining the standards for the various grades and providing opportunity for each pupil to progress at his own pace. For instance, a teacher in the third grade may have a few pupils who have not quite completed the work of the second grade as well as some pupils who have already started on 4th grade assignments.

withdrawal : a pattern of action induced by persistent frustration in which a person removes himself from the frustrating obstacle or the realm of frustration and seeks satisfaction in ways such as day-dreaming, sleeping, alcoholism, or escape from work. An individual wants to withdraw from reality and aims at forgetting personal problems.

Women Education, Report of the National Committee (1959) on (Ind.) : see 'Report of the National Committee on Women's Education (1959)'.

women education (before 200 B.C.) (Ind.) : women were eligible for the study of the Vedas and

the performance of sacrifices. *Upanayana*, the Vedic initiation of girls had been as common as that of boys. There were women scholars who remained unmarried for a long time devoting themselves to higher studies. It is said that Rigvedic collection contains hymns composed by different poetesses. Maitreyi was deeply interested in the problems of philosophy and Gārgi was a great dialectician and philosopher of religion and philosophy. Many of the women made teaching their profession. There were boarding houses for girl students probably under the superintendence of women teachers. Several ladies in Buddhist families used to lead a life of celibacy in pursuit of religion and philosophy.

women education (200 B.C.—1200 A.D.) (Ind.) : During this period female education received a great setback due to the deterioration of the religious status of women and the lowering of the marriage age. The girls gradually lost the privilege of *Upanayana*, the Vedic initiation, and were considered unfit to recite Vedic *mantras* or perform Vedic sacrifices. In the Vedic period the girls were married at about the age of 16 or 17, but during this period the marriageable age lowered down to 12. Girls in rich, aristocratic and royal families, however, continued to receive a fairly good literary education. Besides the study of Sanskrit and Prākṛit works, they were given a good grounding in domestic arts, culinary arts and fine arts like music, dancing, painting, household decorations and garland-making. Educated ladies in cultural families had been known to have contributed to literature. Widows or women in distress used to have recourse to spinning and weaving as an independent means of existence.

women education (1200 A.D.—1800 A.D.) (Ind.) : percentage of literacy among women went down very rapidly during the Muslim rule. Society as a whole became prejudiced against female education. The *pardāh* system stood in the way of girls beyond a certain age being sent to schools, though very young girls had some schooling where possible. Sultana Raziah who ascended the throne of Delhi was an educated princess. Mughal Emperors provided liberal education to the princesses. Gul-Badan Begum, the daughter of Babar and author of the Humayun-Namah, Nur Jahan, the celebrated wife of Jahangir, Mumtaz Mahal, the wife of Shah Jahan, Jahanara Begum, the eldest daughter of Shah Jahan, Zibunnisa Begum, the eldest daughter of Aurangzeb were learned ladies of the royal household. Akbar set

apart certain chambers in Fatehpur Sikri for a girls' school. Daughters of Rajput chiefs and some Bengali Zamindars were usually able to read and write.

women education (1800—1854) (Ind.): strong prejudices against the education of women through schools prevailed among the people. The East India Company refused to take any action for the education of women. The earliest modern schools for girls was started under the auspices of missions, but such efforts were not effective. A splendid lead was given by liberal Englishmen like David Hare who established a school for girls in Calcutta in 1820 and conducted it at his own expense, Professor Patton of the Elphinstone College, and J.E.D. Bethune. Touched by the pioneer work done by missionaries and philanthropic Englishmen, several great Indians lent their support to the opening of girls' schools and breaking down the traditional popular resistances against women education. Among them, Raja Ram Mohan Roy and Pandit Ishwar-chandra Vidyasagar played an important role. By 1850, the stage was set for a change in the State policy. The lead was taken by Lord Dalhousie, the Governor-General of India who declared that no single change in the habits of the people is likely to lead to more important and beneficial consequences than the introduction of education for their female children and Government should give its frank and cordial support to the cause. These orders were later on confirmed by the Educational Despatch of 1854.

women education (1854-1882) (Ind.): With the despatch of 1854, the State promised financial assistance and even direct action. Unfortunately the disturbances of 1857 followed by the declaration of the policy of social and religious neutrality slowed down the official effort. The establishment of municipalities and the levy of the local fund aiding the primary education helped the establishment of special primary schools for girls between 1870 and 1882. The four visits of Miss Mary Carpenter, the great English social reformer, to India were of great significance. She felt that the establishment of training colleges for women teachers was a must. Her direct access to the highest officers in the country made it possible to give immediate effect to her proposal, and the first training colleges for women primary teachers were established by 1870. By 1882, there were 2,600 primary schools, 81 secondary schools, 15 training institutions and one college for the education of women and girls. The first women

to get the degrees of an Indian University were two students of Bethune's School, now a college, who graduated themselves from the Calcutta University in 1883.

women education (1882-1902) (Ind.): The recommendations of the Indian Education Commission (1882-83) on women education included the support of girls' schools from Public Funds, the payment of liberal grants-in-aid, the offer of freeships and scholarships, the raising up a class of women for teaching girls through various plans etc. Unfortunately, the government could not assign adequate grants for the purpose due to a period of financial stringency that followed the report of the commission, and, therefore, the progress of women education mostly depended on private enterprise. By 1901-02, private effort accounted for 11 out of 12 women colleges, 356 out of 422 secondary schools, 3,982 out of 5,305 primary schools and 32 out of 45 training institutions for women. One significant development during the period was the opening of a career in medicine for women. In 1901-02, there were 76 women in medical colleges and 166 in medical schools. The Lady Dufferin Fund was created for developing medical education for women.

women education (1902-1921) (Ind.): The period between the appointment of the Indian Universities Commission in 1902 and the transfer of education to Indian control in 1921 showed a better progress in the education of women mainly due to the great public awakening and the first world war. By 1921-22, there were 19 colleges for women, 675 secondary schools for girls and 21,956 primary schools for girls. The burden still lay heavy on private effort, though direct government effort had considerably increased. A very significant development of this period was the considerable rise in the age of marriage. This naturally increased the educational opportunities for girls and their continuance in schools and colleges. The demand of the educated men themselves to have educated wives gave further encouragement to women education. Another significant event of the period was the establishment of S.N.D.T. Indian Women's University in Bombay by Maharshi D.K. Karve in 1916. In 1921-22, there were 197 women in medical colleges and 334 in medical schools, 67 in colleges for teaching and 3,903 in schools for teaching. A large number of women took up commercial and technical careers.

women education (1921-1947) (Ind.): The favourable factors for the promotion of women

education of this period were : a further rise in the age of marriage, the teachings of Mahatma Gandhi, the phenomenal awakening of Indian womanhood, and the introduction of Provincial Autonomy in 1937. No doubt it was also a period of financial stringency and political struggle. In spite of these difficulties women education made considerable progress. In 1946-47, there were 59 Arts and science colleges for women, 2,370 secondary schools for girls, 21,479 primary schools for girls, and 4,288 institutions for professional, technical and special education for women. Owing to the greater initiative shown by the State Governments and local bodies the burden on private effort was considerably reduced as it accounted for 16,979 women institutions out of a total of 28,196 women institutions. The period also showed an increase in the trend towards co-education. By 1947, a little more than half of the number of girls under instruction were studying in mixed schools.

women education (after 1947) (Ind.) : The University Education Commission (1948-49) made certain recommendations regarding women education. But the most important development in the field of women education was the setting up of a National Committee for Women's Education under the chairmanship of Smt. Durgabai Deshmukh which examined the problem of women education very comprehensively. As a result of the recommendations of this committee, a National Council for the education of women was set up in 1959 under the chairmanship of Smt. Durgabai Deshmukh. State Councils have been established in the States and Union Territories. Smt. Hansa Mehta Committee was appointed in 1962 by the National Council for Women's Education to examine comprehensively the problem of curricula for girls at all stages of education. Another Committee was appointed by the Council in May 1963 with Shri M. Bhaktavatsalam, Chief Minister of Madras as its chairman to look into the causes for lack of public support particularly in rural areas for girls' education. Most of the State Governments have created the post of an Assistant or Deputy Director of Education in charge of girls' education. As against 24.6% of the total population in the age group 6-11 in 1950-51, 61.6% girls attended school in 1965-66; in the age group 11-14, it increased from 4.5% to 16.5%.

women scholars mentioned in the Vedas (Ind.) : Apālā of the Atri family ; Gārgi, the Vedic philosopher ; Ghoshīā who composed two entire

hymns in the tenth book of the *Rig Veda* ; Lopāmudrā, wife of Agastya ; Maitreyi, wife of Yājñavalkya ; Mamtā, wife of Utathya ; Nivavari ; Prāthītheyi ; Romasha who composed a hymn ; Shāshavati, who also composed a hymn ; Vishvavārā of the Atri family, who composed a sacrificial hymn.

Women's Education, National Committee on (Ind.) : see 'National Committee on Women's Education'.

Wood's Despatch (Ind.) : the despatch issued in 1854 by Sir Charles Wood (afterwards Lord Halifax), the President of the Board of Control in India, in which he declared, 'the education that we desire to see extended in India is that which has for its object the diffusion of the improved arts, science, philosophy and literature of Europe, in short of European knowledge'. The Despatch suggested the creation of the Department of Public Instruction, in each province, under the charge of an officer designated as the Director of Public Instruction. The Despatch recommended the institution of universities in the Presidency towns (Calcutta, Madras and Bombay). In the words of Lord Dalhousie, Despatch contained "a scheme of education for all India, far wider and more comprehensive than the Local or the Supreme Government could have ever ventured to suggest".

workbook : a supplementary practice book related to the subject or a particular textbook containing exercises and space for writing answers. Its purpose is to enrich and reinforce learning. It is a teaching aid which should be used with discretion to fulfil a definite purpose. Simply reading the textbook and automatic filling the corresponding pages in the workbook may make learning dull.

work, oral : see 'oral work'.

work, personnel : see 'personnel work'.

work experience : actual experience of work in an occupation before starting a full-time job. The experience can be gained in an educational institution where such facilities exist, or pursuing a course where part-time training in a regular job is necessary, or undertaking part-time job before or after school hours for financial reasons. The place for the work may be the home, workshop, farm, factory or any other productive situation. Work-experience helps to integrate work with experience. Well-organized programme of work experience should result in some earning for the student at least from the higher primary stage.

work-limit test : a test on which sufficient time is allowed for all pupils to complete their work.

work-sample test : a test involving a representative portion of the performance which has to be finally evaluated.

workshop, teachers' : see 'teachers' workshop'.

World Confederation of Organizations of the Teaching Profession : a confederation of 151 national teachers' associations in 95 countries, founded in 1952 in Washington, D.C., U.S.A. to promote closer relationships between teachers in different countries, to improve teaching methods, training and organizations of teachers, to defend the rights and interests of the

teaching profession and to promote international understanding and goodwill through education. It publishes 'Education Panorama' (quarterly).

writing, cursive : handwriting in flowing lines with all the letters within a word joined and angles rounded. It may also be termed running writing.

writing, manuscript : handwriting in adapted printed letter forms, sometimes using a little ornamentation or free strokes.

written recall : see 'recall, written'.

Y

yajna (Ind.) : [lit., worship or sacrifice] The term is derived from the root 'yaj' (to worship). Worship was performed in the form of a *yajna* by means of meditation and *mantras*. By *mantras* the deity was involved. The next requirement of the *yajna* was sacrifice of something to *agni* or fire kindled in the altar or *vedi*. The essence of *yajna* was sacrifice or offering as proof of devotion to the Deity. Sacrifice was considered as an essential condition of salvation and sacrificial ceremonies became an integral part of the Vedic way of life.

Yajurveda (Ind.) : a compilation of prayers to be accompanied by sacrificial acts divided in two parts : the Black *Yajurveda* containing the prayers and sacrificial formulae in verse and the White *Yajurveda* containing the prayers and a certain portion of prose dealing with sacrificial rites and discussions thereon. Educationally, *Yajurveda* exhibited the earliest Indian prose which later developed in the literary masterpieces of the Upanishads. It also helped the development of new studies like phonetics, metrics, geometrical logistics, astronomy, and anatomy.

yama (Ind.) : [lit., abstinences] They are five : (1) *Ahimsā*, abstinence from causing pain by body, mind or speech ; (2) *Satya*, truth of speech and thought ; (3) *Asteya*, abstention from theft ; (4) *Brahmacharya*, continence ; (5) *Aparigraha*, abstinence from appropriating objects or even accepting gifts.

Yas tvam asi so'ham asmi (Ind.) : [lit., 'what thou art, that am I'] a great saying from the *Isha Upanishad* stressing the identity of all things in *Brahma*.

yes-no item : a type of alternate-response item

requiring an affirmative or negative answer in 'yes' or 'no' respectively.

Yoga (Ind.) : [lit., union] Etymologically it is connected with the English word 'yoke' meaning 'to join'. *Yoga* is a practice or way of life of withdrawing the organs from the objects of sense and focussing them on the inner self in order to shake itself free from the world of plurality and to secure the union of the human soul with the universal soul. There are several forms of *Yoga*, the chief among them are : *Karma Yoga*, salvation through works ; *Jñāna Yoga*, salvation through knowledge ; *Bhakti Yoga*, salvation through devotion or faith ; *Raja Yoga*, through spiritual culture ; and *Hatha Yoga*, through physical culture. It is the *Hatha Yoga*, with its exercises, *āsana*s and tendencies towards occultism, which is popularly mistaken as *Yoga* in general.

Yoga, a school of philosophy (Ind.) : one of the six orthodox schools of Hindu philosophy said to have been founded by Yājñavalkya and codified in the *Yoga Sutra* of Patanjali. The Yoga School is closely akin to Sāṅkhya accepting the 25 *tattva*s, but also bringing God into the picture, not as a Creator but as an exalted soul.

Yoga, eight limbs of (Ind.) : The eight limbs of or aid to *Yoga* are *Yama* (abstinences), *Niyama* (observances), *Āsana* (prescribed bodily postures for meditation), *Prāṇāyāma* (regulation or control of the breath), *Pratyāhāra* (withholding or withdrawal of the senses), *Dhāraṇā* (concentration or fixation of attention), *Dhyāna* (contemplation or meditation) and *Samādhi* (absorption, a trance-like state).

Young Helmholtz theory : the theory that human colour vision depends on three receptors, a

'blue' receptor, a 'green' receptor, and a 'red' receptor.

Young School Leavers (*Brit.*): a report of an enquiry carried out for the Schools Council by the Government Social Survey 1968. The enquiry was conducted by Roma Morton, Williams and Stewart Finch on behalf of the Schools Council in Britain. The purpose was to provide some evidence about current attitudes at home and at school, which would focus and sharpen discussion on all the work

schools do for their pupils. The survey gives the views of young people, parents and teachers.
youth: a young person older than 15 or 16 years.

youth, out-of-school: see 'out-of-school youth'.

Yuddha-kanda (*Ind.*): [lit., battle section] the sixth book of the *Rāmāyana*, also called *Lankā-kānda*, describing the war with Rāvana who meets his death at the hands of Rāma, the recovery of Sītā, the return to Ayodhyā and the coronation of Rāma.

Z

Zakir Husain Committee (*Ind.*): see 'Wardha Education Committee'.

z-function: the transformation of product-movement into a normal sampling distribution.

z-score: an obtained score expressed as a devi-

ation from the test mean in terms of σ . When z -scores are converted into a frequency distribution with an assigned mean and σ , they are called standard scores.

GLOSSARY OF NATIONAL TERMS

(Used with reference to Educational Systems of Various Countries)

ARGENTINA

bachillerato : upper cycle of general secondary course.
bachillerato especializado : specialized bachillerato course at vocational secondary school of music.
ciclo básico : lower or 'basic' cycle.
ciclo superior : upper cycle.
ciclo técnico : cycle of technical training.
colegio nacional : general secondary school for boys.
escuela agraria : vocational school of agriculture.
escuela asistencial : vocational and teacher training school of social welfare.
escuela de arte dramático : vocational and teacher training school of drama.
escuela de artes visuales : vocational and teacher training school of pictorial and plastic arts.
escuela de bellas artes : vocational and teacher training school of fine arts.
escuela de bibliotecología : vocational and teacher training school of librarianship.
escuela de cerámica : vocational and teacher training school of ceramics.
escuela de comercio : vocational secondary school of commerce.
escuela de danzas : vocational and teacher training school of classical and national dancing.
escuela industrial (mujeres) : girls' vocational training school for industrial trades.
escuela industrial (varones) : boys' vocational training school for industrial trades.
escuela normal : teacher training school.
escuela primaria : primary school.
escuela profesional (mujeres) : vocational training school for women's occupations.
escuela superior de lenguas : institute of languages (higher vocational and teacher training).
instituto del profesorado en educación física : specialised training college for physical education teachers.
instituto del profesorado secundario : training college for secondary school teachers.
jardín de infantes (kindergarten) : pre-primary school.

liceo de señoritas : general secondary school for girls.
magisterio : upper cycle (professional training) in teacher training school for primary teachers.
misiones de cultura rural y doméstica : itinerant schools providing courses in homecrafts and home economics and elementary general education for women in country districts.
misiones monotécnicas y de extensión cultural : itinerant schools providing courses in various industrial and agricultural trades and elementary general education for men in country districts.
profesorado : teacher training course.
técnico superior : higher technological training.
Universidad Obrera Nacional : advanced technical and technological training at National Workers' University.

BELGIUM

académic royale des beaux-arts : vocational training school of fine arts.
athénée : state general secondary school for boys.
collège : private general secondary school for either sex.
conservatoire royal de musique : vocational training school of music.
école gardienne : pre-primary school.
école moyenne : lower secondary school offering both general and pre-vocational education.
école normale gardienne : teacher training school for pre-primary teachers.
école normale moyenne : teacher training college especially for teachers in the école moyenne.
école normale primaire : teacher training school.
école normale technique : teacher training college for vocational school teachers.
école primaire : primary school.
école professionnelle : vocational training school.
école pour sourds-muets, aveugles, infirmes : special schools for deaf and dumb, blind or crippled children with course corresponding to that of the école primaire and sometimes including pre-primary school.
école technique secondaire : vocational secondary.
enseignement artistique supérieur : higher

education in architecture, visual arts, music and dramatic art.

enseignement de formation artistique : secondary education in music, dramatic art and visual arts, giving access to institutions offering education in the arts at higher level.

enseignement de formation générale : general secondary education with a three-year lower cycle (*degré inférieur*) comprising three sections: Latin, modern, and home economics; and a three-year upper cycle (*degré supérieur*) with sections of Latin-Greek, Latin-mathematics, Latin-science, scientific A (with predominance of mathematics), scientific B (with predominance of natural sciences), economics.

enseignement de formation professionnelle : secondary vocational education with a practical bias, organized in a three-year lower cycle (*degré inférieur*) and a three-year upper cycle (*degré supérieur*) which does not give access to higher education.

enseignement de formation technique : secondary technical education with a theoretical bias in various fields (industry, agriculture, commerce, administration, etc.) organized in a three-year lower cycle (*degré inférieur*) which may be followed by a fourth and fifth year of study; and a three-year upper cycle (*degré supérieur*) which may be followed by a further year of study.

enseignement du 1^{er} niveau (cycle primaire) : primary education.

enseignement du 2^e niveau (cycle secondaire) : secondary education.

enseignement du 3^e niveau (cycle supérieur) : higher education.

enseignement normal gardien : teacher training for pre-primary school teachers.

enseignement normal moyen : teacher training especially for teachers in the lower secondary schools (*écoles moyennes*).

enseignement normal primaire : teacher training for primary school teachers.

enseignement normal technique moyen : teacher training for secondary school teachers with emphasis on women's occupation (dressmaking, home economics, rural home economics and the visual arts).

enseignement primaire : primary education.

enseignement technique supérieur : technical education at higher level in commerce, industry, education, nursing, etc.

lycée : state general secondary school for girls.

4^e degré de l'école primaire : two top classes (seventh and eighth years) of the primary school providing a suitable terminal course generally with vocational bias for pupils who

have not transferred to general or vocational secondary education at the end of sixth year.

BRAZIL

colégio : secondary school offering a first-cycle general secondary course (*ginsio*) and at least one of the two second-cycle courses (science and classics).

educação de grau médio : education at secondary level.

educação de grau primário : education at primary level.

educação de grau superior : education at higher level.

ensino médio : secondary education.

ensino primário : primary education.

ensino superior : higher education.

escola agrícola : lower vocational secondary school of agriculture offering the two successive courses of the first cycle (introductory agricultural course and the course for the qualified agriculturalist's certificate).

escola agrotécnica : vocational secondary school of agriculture offering both the first-cycle courses (see *escola agrícola*) and at least one second-cycle course (technical agricultural courses).

escola de aprendizagem comercial—SENAC : part-time vocational training school of commerce, for juveniles and adults, organized by the National Service of Commercial Apprenticeship (SENAC).

escola de aprendizagem industrial—SENAI : part-time vocational training school of industrial training, for juveniles and adults, organized by the National Service of Industrial Apprenticeship (SENAI).

escola de belas artes : upper vocational training school in the fine arts, also offering courses combining general secondary and artistic studies.

escola comercial : vocational secondary school of commerce.

escola de enfermagem : vocational training school of nursing.

escola de iniciação agrícola : vocational secondary school of agriculture offering the lower introductory course in the first cycle.

escola industrial : vocational secondary school of industrial training offering the first-cycle (basic) course.

escola de música : vocational training school of music offering two secondary courses and one higher-level course. The secondary courses are for the training of professional musicians and music teachers respectively. To be admitted to the upper-level course candidates must

have their general secondary leaving certificate and the music teachers' course certificate.
escola normal : teacher training school, carrying on from the first-cycle (*ginásio*) course.
escola normal regional : teacher training school at first-cycle secondary level.
escola primária : primary school.
escola técnica : vocational secondary school of industrial training offering the first-cycle (basic) course and at least one second-cycle technical course.
escola técnica de comércio : vocational secondary school of commerce offering at least one second-cycle course (technical commercial course) with or without the first-cycle course.
ginásio : lower general secondary school offering the first-cycle course only.
instituto de educação : teacher training school offering a course at second-cycle secondary level, courses for primary school teachers wishing to specialize, and courses in school administration.
jardim de infância : kindergarten.
normal : teacher training at secondary level, divided into a first cycle of four years (*ginasial*) and a second cycle of three years (*colegial*).
secundário : general secondary training divided into a first cycle (*ginasial*) and a second cycle (*colegial*).
técnico agrícola : agricultural training at secondary level divided into a first cycle (*ginasial*) and a second cycle (*colegial*).
técnico comercial : vocational training for commerce at secondary level, divided into a first cycle (*ginasial*) and a second cycle (*colegial*).
técnico industrial : vocational training for industrial occupations at secondary level, divided into a first-cycle (*ginasial*) and a second cycle (*colegial*).

CANADA

English Language Schools

elementary school : primary school.
high school : secondary school with 4 or 5 year courses of academic, commercial, technical or composite type. The larger high schools may be known as *collegiates*.
junior college : non-degree granting college : some junior colleges combine the upper years of high school and first years of undergraduate study ; others have a high school department affiliated to a university.
junior high school : lower general secondary school comprising the two upper grades of the regular elementary school and the first grade of high school.
kindergarten : pre-primary school for 4- and

5-year-olds.
nursery school : pre-primary school for 3- to 5-year-olds.
school for nurses : vocational training school.
senior high school : upper secondary school.
teachers' college : teacher training college, sometimes known as normal school.
technical institutes : vocational training schools with advanced, or post-secondary courses training technicians and technologists.
trade schools : vocational training schools.
vocational and commercial high schools : secondary schools with 4-year courses emphasizing vocational subjects.

French Language Schools (Province of Quebec)

collège classique : secondary school with classical academic course.
école de laiterie : vocational training school for workers in dairying industry.
école de métiers : vocational training school for various trades.
école de pêche : vocational training schools for the fishing industry.
école des métiers féminins : vocational training school of women's trades.
école d'infirmières : vocational training school of nursing.
école élémentaire : primary school.
école forestière : vocational training school of forestry.
école maternelle : pre-primary school.
école moyenne d'agriculture : vocational school giving practical training in agriculture.
école moyenne familiale : vocational training school of home economics.
école normale : teacher training school.
école secondaire : general or composite secondary school, including schools previously known as *école primaire complémentaire* and *école primaire supérieure*.
institut de marine : vocational training school of navigation and marine engineering.
institut de papeterie : vocational training school for workers in the paper-making industry, with courses at secondary and post-secondary level.
institut de technologie : vocational secondary school of technical studies, preparing for a wide variety of trades and industries.
institut des arts appliqués : vocational training school of arts and crafts.
institut des arts graphiques : vocational training school of printing, book manufacturing and related trades.
institut du textile : vocational training school

for technicians in the textile industry.

instituto familiar : advanced vocational training school of home economics.

CHILE

enseñanza media : secondary education.

escuela agrícola : vocational secondary school of agriculture with courses at two levels (*grados*), the lower course comprising two cycles (*ciclos*). The first cycle of the lower course plus a third year of specialized training leads to qualification as specialized agricultural assistant (*auxiliar de campo especializado*); the second cycle plus a third year to qualification as specialized agricultural worker (*práctico agrícola especializado*); the upper course trains agricultural technicians (*técnicos agrícolas*).

escuela consolidada : consolidated, central school with complete primary course and the first cycle of secondary general and technical education (*1º ciclo enseñanza media*).

escuela de párvulos (infant school) : pre-primary school.

escuela especial : primary school for handicapped children.

escuela experimental : experimental primary school.

escuela granja (farm school) : complete rural primary school with curriculum adapted to needs of rural children and with extensive grounds for practical work in agriculture.

escuela hogar : primary boarding school intended mainly for needy children.

escuela industrial : vocational secondary school providing technical training for industrial occupations (*grado de oficios*). Students may take specialized courses after two or four years' study.

escuela normal : teacher training school.

escuela primaria de primera clase : complete (lit. 'first class') primary school, sometimes having continuation vocational classes (*grado vocational*).

escuela primaria de segunda clase : incomplete (lit. 'second class') primary school.

escuela primaria de tercera clase : incomplete (lit. 'third class') primary school.

escuela técnica femenina : vocational secondary school for girls.

escuela vocational : vocational training school equivalent to the *grado vocational* of the primary school (see: *escuela primaria de primera clase*).

grado de oficios : see *escuela industrial*.

grado vocational : see *escuela primaria de primera clase*.

instituto de comercio : secondary vocational school of commerce with courses organized in three cycles (*ciclos*); on completing the first cycle students may take a specialized (terminal) year of practical studies (*especialización práctica*).

jardín infantil (kindergarten) : pre-primary school.

liceo común : general secondary school of traditional type.

liceo renovado : general secondary school of modern type with a more flexible curriculum than the *liceo común*.

CHINA (Taiwan)

chien yi shih fan hsueh hsiao : emergency teacher training school for teachers in the lower cycle of the primary school.

chien yi shih fan ko : emergency teacher training course for teachers in the lower cycle of the primary school.

chih yeh hsueh hsiao : vocational secondary school.

chung hsueh : general secondary school comprising a lower cycle (*isu chieh*) and an upper cycle (*kao chieh*).

chung sin kuo min hsueh hsiao : central citizens' school—primary school with a lower cycle of four years and an upper cycle of two years.

fa hsueh yuan : college of law.

hsiao hsueh : a name for the primary school either subordinate to a teacher training school or established by a private body.

i hsueh yuan : college of medicine.

kao chieh chih yeh hsueh hsiao : upper vocational secondary school.

kung hsueh yuan : college of engineering.

kuo min hsueh hsiao : citizens' school—primary school with a four-year course or with a lower cycle of four years and an upper cycle of two years.

li hsueh yuan : college of science.

nung hsueh yuan : college of agriculture.

shih fan hsueh hsiao : teacher training school.

shih fan hsueh yuan : teachers' college.

shung hsueh yuan : college of commerce.

szu erh chih shih yen chung hsueh : experimental high school (4-2 system).

ta hsueh : universities (offering four-year courses except in the college of medicine, six years, and teachers' college, five years).

teh pieh shih fan ko : emergency teacher training course for teachers in the primary school.

ti erh pu : emergency teacher training course for teachers in the secondary school.

tsuan hsiu ko : special faculty of junior college standing.

tsuan ko hsueh hsiao : five or six-year technical school admitting junior high school graduates as entrants and offering a five or six-year continuous course with the last two or three years at a junior college level.

tsu chieh chili yeh hsueh hsiao : lower vocational secondary school.

wen hsueh yuan : college of liberal arts.

yen chio suo : research institutes at post-graduate level.

yo chih shih fan ko : teacher training course for kindergarten teachers.

yo chih yuan : kindergarten, pre-primary school.

COLOMBIA

educación física : physical education.

enseñanza media : secondary education.

enseñanza pre-escolar : pre-primary education.

enseñanza primaria : primary education.

enseñanza superior : higher education.

escuela auxiliar de enfermería : vocational training school for nursing assistants.

escuela complementaria : vocational secondary school with varied programme of general and vocational subjects.

escuela de artes y oficios : vocational training school of arts and trades.

escuela normal agrícola : specialized teacher training school for teachers in agricultural schools.

escuela normal elemental : teacher training school for teachers in urban primary schools.

escuela normal rural : teacher training school for teachers in rural primary schools.

escuela normal superior : teacher training school for teachers in secondary schools.

escuela primaria rural alternada : incomplete double-session primary school (classes for boys in the mornings, girls in the afternoon) in rural areas.

escuela primaria rural : rural primary school (separate schools for boys and girls).

escuela primaria urbana : urban primary school.

escuela secundaria : general secondary school with course leading to the bachillerato or baccalaureate examination.

escuelas técnicas : four-year technical schools, with a further two-year course leading to the title of *experto*, and a seventh year leading to the *bachillerato industrial*.

escuela vocacional agrícola : vocational training school of agriculture.

instituto agrícola : agricultural institute.

instituto de comercio : vocational secondary school of commerce

instituto industrial : industrial institute.

instituto técnico elemental : vocational secondary

school of industrial arts.

instituto técnico superior : vocational school for advanced technical training.

jardín de la infancia (*kindergarten*) : pre-primary school.

CZECHOSLOVAKIA

hospodářská škola : vocational secondary school with 4-year course preparing for entry to various branches of administration of national economic system and a 2-year vocational training course for shorthand typists, clerks, etc.

hudební škola : vocational secondary school of music.

jedenáctiletá škola (11-year school) : school providing complete primary and general secondary course.

lesnická škola : vocational secondary school of forestry with 4-year course for specialist technicians and 2-year vocational training course for woodmen.

materská škola : pre-primary school.

národní škola (national school) : lower primary school providing first 5 years of compulsory general education.

odborné školy : vocational schools.

osmiletá škola (8-year school) : primary school covering period of compulsory general education (see *střední škola*).

osvětová škola : vocational secondary school training staff of adult education centres.

pedagogická škola : teacher training school.

pětiletá škola (5-year school) : first 5 years of general education.

škola pro učitelky mateřských škol : teacher training school for teachers in pre-primary schools (3-year studies followed by a year of supervised teaching).

škola průmyslová : vocational secondary school preparing technicians for the various branches of industry.

škola státních pracovníků záloh : vocational training school for apprentices in industrial and agricultural occupations.

škola uměleckého průmyslu : vocational secondary school of arts and crafts.

střední škola (middle school) : upper primary school providing or completing 8-year course of compulsory general education.

výběrová škola : general secondary school completing 11-year course of general education.

vyšší školy : institutions of higher education.

vyšší škola pedagogická : teacher training college.

základní devítiletá škola : basic 9-year school, covering the period of compulsory education and organized in a first and second stage.

zemědělská škola : vocational secondary school

of agriculture with 4-year course for specialist technicians attached to agricultural co-operatives and machine-tractor stations, and a 2-year course for book-keepers and junior administrative personnel in these organizations.
zdravotnická škola : vocational secondary school for health workers.

DENMARK

aftenskoler : evening schools for young people providing non-vocational education beyond compulsory school years.
eksamensfri mellem skole : lower general secondary school of modern type.
eksamenskursus : accelerated course enabling older pupils who have not attended the academic type of secondary school to qualify for further education.
eksamensmellem skole : lower general secondary school with academic bias.
folkeskole : complete course of elementary education covering primary school and lower secondary school.
folkehøjskoler : residential colleges providing courses of general education for adults (folk high schools).
forberedelseskasse : preparatory class for entrance into certain institutions.
forskole : lower rural primary school.
grundskole : lower urban primary school.
gymnasium : upper general secondary school.
handelsskole : lower vocational secondary school of commerce.
høvedskole : upper primary school.
husholdningsskoler : schools of domestic science for adults.
landbrugsskoler : agricultural schools of further education.
landsbykole : complete rural primary school.
realklasse : upper general secondary school preparing for careers in commerce, civil service, etc.
realskole : lower general secondary school.
seminarium : teacher training college.
studenterlinie på seminarium : accelerated course at teacher training college.
ungdomsskoler : schools for young unskilled workers.

FRANCE

centre d'apprentissage (collège d'enseignement technique) : vocational training school for apprentices.
classes préparatoires aux grandes écoles : post-secondary classes attached to certain *lycées* and *collèges* for students preparing for the competitive entrance examinations to the *grandes*

écoles.

classes primaires : primary classes attached to a *lycée* or *collège*.

classique et moderne : academic sections with emphasis on : Greek, Latin, and a modern language ; Latin and two modern languages ; Latin science and a modern language ; science and two modern languages ; or biology, science and a modern language.

collèges : general secondary schools, sometimes with primary classes attached, which are established and partly maintained by local authorities at the level of the commune, and which are variously organized to provide classical courses (*enseignement classique*) or modern (*enseignement moderne*) or both.

collège technique : vocational secondary school ; 4-year course trains workers who may become foremen, supervisors, etc., 6-7 year course leads to higher technical education.

cours complémentaire (collège d'enseignement général) : complementary course provided at certain primary schools and corresponding to the lower cycle (first four years) of the *enseignement moderne*.

école d'enseignement moyen agricole : vocational secondary school of agriculture.

école maternelle : pre-primary school, or pre-primary classes attached to a primary school.

école municipale de beaux-arts (...de musique) : municipal vocational training school of fine arts (or music).

école nationale de beaux-arts (...de musique) : state vocational training school of fine arts (or music).

école nationale professionnelle : vocational secondary school ; 5-year course trains skilled technicians, 7-year course leads to higher technical education.

école normale : teacher training college for primary teachers (separate institutions for men and women).

école primaire élémentaire : complete primary school covering the period of compulsory education.

écoles d'ingénieurs : specialised institute of engineering with varying courses and entrance requirements for training in mechanical engineering, textile engineering, ceramics, etc.

écoles normales primaires : primary school teacher training institutions.

écoles normales supérieures : higher training institutes for secondary school teachers.

éducation générale et professionnelle : final year of compulsory education (terminal) with pre-training in commerce, industry and agriculture.

enseignement agricole : agricultural training

offered at the collèges and lycées agricoles.
enseignement classique : general secondary course with Latin and optional Greek.
enseignement court : terminal one or two-year upper secondary education.
enseignement du premier cycle : lower secondary education offered at *lycées classiques et modernes*, *collèges d'enseignement général*, and *collèges d'enseignement secondaire*.
enseignement du second cycle : upper secondary education.
enseignement élémentaire : primary education.
enseignement général : academic education offered in *classique* or *moderne* sections.
enseignement long : complete upper secondary education.
enseignement moderne : general secondary course without Latin.
enseignement moderne court : the lower cycle (first 4 years) of the *enseignement moderne*.
enseignement pratique terminal : terminal practical training.
enseignement préscolaire : pre-primary education.
enseignement supérieur : higher education.
grandes écoles : specialized institutions of higher education providing training in branches of administration, commerce, industry and agriculture in one to four-year courses following the concours d'entrée dans les grandes écoles.
lycées : general secondary schools, sometimes with primary classes attached, which are established and maintained by the central authorities with the assistance of departmental or municipal authorities, and which are organized to provide the classical course (*enseignement classique*), the modern course (*enseignement moderne*) or both.

(Examinations)

Agrégation : a competitive examination for recruitment to the higher posts in secondary and higher education.
Baccalauréat : university entrance examination, which is taken in two parts at the end of the sixth and seventh years respectively of secondary education.
Brevet d'enseignement commercial, industriel, hôtelier, social : diploma awarded on the successful completion of studies in commerce, industrial arts, hotel management, social welfare.
Brevet d'études du premier cycle : lower secondary school certificate.
Certificat d'aptitude pédagogique : primary teacher's certificate.
Certificat d'aptitude professionnelle : vocational proficiency certificate.

Certificat d'études primaires : primary school certificate.
Concours d'entrée à l'école normale : competitive entrance examination for teachers training college.
Concours d'entrée dans les grandes écoles : competitive entrance examinations for the grandes écoles.
Diplôme d'ingénieur : engineering diploma.
Doctrat : doctorate.
Examen d'entrée en sixième : secondary school entrance examination. Pupils in public schools with sufficiently high, average mark during primary course are exempt.
Licence : licentiate.

GERMANY, FEDERAL REPUBLIC OF

Aufbaugymnasium, 7 jährig : seven year (or six-year) general secondary school (short form of *Gymnasium*) admitting pupils after six (or seven) primary years and leading to the *Abitur* examination.
Berufsaufbauschule : vocational extension course providing general and technical course on a part-time basis giving access to higher studies.
Berufsfachschule : full-time vocational school.
Berufsschule : part-time vocational school (compulsory for children under 18 not attending other formal schooling) offering from six to twelve hours of study per week.
Fachschule : advanced vocational or technical school leading to a professional certificate.
Fakultät f. Allgemeine Wissenschaften : faculty of general science.
Fakultät f. Bauwesen : faculty of civil engineering.
Fakultät f. Elektrotechnik : faculty of electrical engineering.
Fakultät f. Maschinenbau : faculty of mechanical engineering.
Gymnasium, 9 jährig (Langform) : nine-year full general secondary school of three main types leading to the *Abitur* examination : *altsprachliches Gymnasium* (classical languages with emphasis on Latin and Greek); *neusprachlicher Typ* (modern languages with emphasis on English, French, Latin and sometimes Russian or other languages); and *mathematisch-naturwissenschaftlicher Typ* (mathematics-science with emphasis on mathematics, physics, chemistry and two modern languages).
Ingenieurschule : school of engineering with a three-year course (two and a-half years for geodesy).
Landwirtsch. Fakultät : faculty of agriculture.
Mathematisch-Naturwissensch. Fakultät : faculty of mathematics and science.

Medizinische Fakultät : faculty of medicine.

Mittelschule : lower general secondary school with four or six-year courses.

Philosophische Fakultät : faculty of philosophy (arts and humanities).

Theologische Hochschule : theological seminary.

Volkschule : eight or nine year primary school with a lower and upper level ; lower elementary level of four years (six years in Berlin, Bremen and Hamburg) and upper level of four or five years (three years in Berlin, Bremen and Hamburg).

Wirtschafts-und Sozialwissensch. Fakultät : faculty of economics and social sciences.

GREECE

demotikon scholeion : primary school.

didaskaleion nepiagogon : teacher training school for pre-primary teachers.

emporiki scholi : vocational secondary school of commerce.

geoponiki scholi : vocational training school of agriculture.

gumnasion : general secondary school with curriculum emphasizing classical Greek and Latin studies.

gymnastiki akademia : specialized teacher training college for teachers of physical culture.

lykeion : general secondary school with curriculum emphasizing sciences.

nepiagogeion : pre-primary school.

odeion : vocational training school of fine arts or music.

paidagogika akademia : teacher training college.

INDONESIA

akademi seni rupa Indonesia : vocational training school of arts.

sekolah guru A (SGA) : teacher training school at upper secondary level.

sekolah guru B (SGB) : teacher training school at lower secondary level.

sekolah guru kepandaian putri : specialized teacher training school for teachers of home economics.

sekolah kepandaian putri : lower vocational secondary school of home economics.

sekolah menengah atas : upper general secondary school.

sekolah menengah ekonomi atas : vocational secondary school of commerce.

sekolah menengah ekonomi pertama : lower vocational secondary school of commerce.

sekolah menengah pertama : lower general secondary school.

sekolah menengah pertanian : vocational training school of agriculture.

sekolah rakjat : primary school.

sekolah rakjat tadak sempurna : rural primary school, at present incomplete but being progressively converted into full primary course.

sekolah teknik : lower vocational secondary school of technical studies.

sekolah teknik menengah : upper vocational secondary school of technical studies.

IRAN

dābestān : primary school.

dābīrestān : general secondary school, with course comprising a lower cycle of core subjects and an upper cycle of specialization (see *sho'beh riyāzi*, *sho'beh ādābi*, *sho'beh tābī'i*).

dābīrestān-e fannī-ye dokhtārān : vocational secondary school for girls with general subjects and practical training in home economics area.

dābīrestān-e keshāvarzi : vocational secondary school of agriculture.

dāneshsārā-ye keshāvarzi : specialized teacher training school for teachers of agriculture.

dāneshsārā-ye mōghaddamāti : teacher training school.

honārestān : vocational training school for industries and trades.

honārestān-e hānovān : vocational training school for women's occupations.

koudakestān : pre-primary school.

sho'beh ādābi : literary course in upper cycle of general secondary school.

sho'beh riyāzi : mathematics course in upper cycle of general secondary school.

sho'beh tābī'i : natural science course in upper cycle of general secondary school.

IRAQ

al-dawrāt al-tarbawiyah : teacher training course.

al-dīniyah al-thānawiyah : secondary school with curriculum emphasizing religion and law.

dar al-mu'allimīn al-ibtidā'iyah : teacher training school.

ibtidā'iyah : primary school.

i'dādiyah adabi : literature course at upper general secondary school.

i'dādiyah 'ilmi : science course at upper general secondary school.

madrasat al-ahdāth : pre-primary school.

ma'had al-funūn al-jamīlah : vocational training school of fine arts.

madrasat al-funūn al-manziliyah : vocational secondary school of domestic science.

madrasat al-mufawwadīn : vocational training school for police officers.

madrasat al-mumarridāt : vocational training school for nurses.

madrasat al-shinā'ah : vocational training school.

madrasat al-tijārāh al-i'dādiyah : vocational training school of commerce.

madrasat al-zirā'ah : vocational training school of agriculture.

mutawassīfah : lower general secondary school.

ITALY

conservatorio di musica e liceo musicale : vocational training school of music.

ginnasio e liceo classico : upper general secondary school with curriculum emphasizing literary studies and including Greek ; course comprises lower stage (*ginnasio*) and upper stage (*liceo classico*).

istituto d'arte : vocational training school of art with course for training specialist teachers (*magistero*).

istituto magistrale : teacher training school.

istituto professionale : vocational training school at upper secondary level.

istituto tecnico agrario : vocational secondary school of agriculture.

istituto tecnico commerciale : vocational secondary school of commerce.

istituto tecnico femminile : vocational secondary school for girls.

istituto tecnico industriale : vocational secondary school of industry, often specializing in one field of study (mining, textiles, metallurgy, etc.)

istituto tecnico nautico : vocational secondary school of nautical studies (navigation, marine engineering and ship-building).

istituto tecnico per geometri : vocational secondary school of surveying.

liceo artistico : upper general secondary school with curriculum emphasizing fine arts.

liceo musicale : see *conservatorio di musica*.

liceo scientifico : upper general secondary school with curriculum emphasizing mathematics and sciences and including a modern language.

magistero : see *istituto d'arte*.

scuola d'arte : vocational training school of art.

scuola di avviamento professionale : pre-vocational training school.

scuola elementare : primary school.

scuola materna (del grado preparatorio) : pre-primary school.

scuola media : lower general secondary school.

scuola tecnica : vocational training school.

JAPAN

chūgakkō : lower general secondary school, completing period of compulsory education. Private schools of this type are often combined with upper secondary schools and require pupils to take an entrance examination.

daigaku : university. All faculties award bachelor's, master's and doctor's degrees and are organized as follows : medical and dental—6-year course for bachelor's degree followed by one year as intern ; teacher training—4-year course for bachelor's degree or in some cases 2-year course for second-class teacher's certificate ; other faculties—4-year course for bachelor's degree.

kōtōgakkō : upper secondary school ; full-time school has 3-year course, and part time 4-year. Both provide general and vocational curriculum. Vocational courses include agriculture, commerce, fishery, home-making, industry, etc.

kōtōgakkō-teijisei : upper secondary school (part-time).

kōtōgakkō-zennichisei : upper secondary school (full-time).

kōtō-senmongakko : technical college.

shōgakkō : primary school.

tanki-daigaku : junior college ; provides 2 or 3-year course, mainly vocational in nature, leading to diploma.

yōchien (kindergarten) : pre-primary school.

KOREA, REPUBLIC OF

ehogup-daehak : junior college.

chung-hakkyo (middle school) : lower general secondary school.

dae-hak : college.

dae-hak-won : graduate school.

kisul-hakkyo (technical school) : lower vocational training school preparing for various trades.

kodeung-hakkyo (high school) : upper general secondary school.

kodeung kisul-hakkyo (higher technical school) : upper vocational training school for various trades with courses of one to three years' duration, and sometimes a one-year post-high school course in a given field.

kōdeung kongmin-hakkyo (higher civic school) : part-time school providing general education for young people and adults.

kongmin-hakkyo (civic school) : part-time school providing general education for young people and adults.

kukmin-hakkyo (elementary school) : primary school.

kyoyuk-daehak : college of education.

sapum-hakkyo (normal school) : teacher training school.

silup-hakkyo (vocational school) : vocational secondary school of agriculture, commerce, fisheries or home economics or technical high school.

yu-chi-won : kindergarten, pre-primary school.

MEXICO

bachillerato de ciencias: see *escuela preparatoria*.
bachillerato de humanidades: see *escuela preparatoria*.

escuela agrícola: vocational training school of agriculture.

escuela de bellas artes: vocational training school of music, dancing or fine arts.

escuela de enfermeras y parteras: vocational training school for nurses and midwives.

escuela especial: vocational training school for industrial and commercial occupations.

escuela militar: vocational training school (army).

escuela naval: vocational training school (navy).

escuela normal: teacher training school.

escuela preparatoria: upper general secondary school with courses leading to baccalaureate in science (*bachillerato de ciencias*) and arts (*bachillerato de humanidades*), and a baccalaureate of general type (*bachillerato único*).

escuela pre-vocacional (tecnológica): lower vocational secondary school.

escuela primaria: primary school.

escuela secundaria: lower general secondary school.

escuela vocacional: upper vocational secondary school.

jardín de niños: pre-primary school.

normal de especialización: specialized teacher training course (4 years).

normal superior: higher teacher's college.

NETHERLANDS

algemeen landbouw- of tuinbouwschool (secondary agricultural or horticultural school): vocational secondary school for property administrators and managers; sometimes specialized on one subject (e.g., dairying) than known as *landbouwwak-school*.

avondnijverheidsschool (technical evening school): part-time vocational training school for boys.

bedrijfschool (industrial school): vocational training school usually attached to a factory.

gewoon lager onderwijs (elementary education): primary school, often with attached continuation classes (*voortgezet*).

gymnasium (grammar school): general secondary school of academic type, with two streams, A (languages) and B (science).

handelsonderwijs (commercial training): vocational training schools of commerce of various kinds, including the *handelsdagschool* (day school), *handelsavondschool* (evening school) and *school voor winkelpersoneel* (school for shop assistants).

hogere burgerschool (modern secondary school):

general secondary school with two streams, A (languages) and B (science).

huishoudschool: vocational training school of home economics.

klein-seminarium (junior seminary): general secondary school of academic type providing initial training for intending Roman Catholic priests.

kleuterschool (infant school): pre-primary school.

kunst-, kunstnijverheid- en bouwkundonderricht (instruction in arts and crafts): vocational secondary school of fine arts and crafts.

kweekschool: teacher training school for primary teachers.

lagere land- of tuinbouwschool (elementary agricultural or horticultural school): part-time vocational training school of agriculture or horticulture.

lagere technische dagschool (elementary technical day school): vocational training school.

middelbaar technisch onderwijs (intermediate technical education): vocational secondary school.

middelbare school voor meisjes (intermediate school for girls): general secondary school of non-academic type for girls.

opleiding voor nijverheidsonderwijs: training classes for intending teachers in vocational schools for boys (*jongens*) or girls (*meisjes*).

scholen voor buitengewoon onderwijs: special schools for physically and mentally defective children.

uitgebreid lager onderwijs v. l.o. of m. u. l.o. (advanced primary education): lower general secondary school.

uitgebreid lager nijverheidsonderwijs (advanced vocational training): vocational training school for boys or for girls (*voor meisjes*).

voortgezet gewoon lager onderwijs (complementary primary education): upper two years of eight-year primary school, with practical bias, sometimes a separate institution.

zee- en luchtvaartschool (navigation and naval and aircraft mechanics school): vocational training school.

zeevisserijschool en binnenvaartschool (sea-fishery and inland navigation school): vocational training school.

NEW ZEALAND

contributing school: primary school from which pupils of the senior division (usually forms 1 and 2) have been removed to an intermediate school or to the intermediate department of a secondary school.

correspondence school: an institution providing correspondence courses covering primary and

secondary education for children living in isolated area or invalid children.

dental nurses' school: vocational training school for staff in State dental clinics for school children.

district high school: complete rural primary school with secondary department attached, some of these schools being Maori district high schools.

full primary school: school providing complete primary course (infant department, followed by standards 1 to 4 and forms 1 and 2).

infant department: first two years of primary school course, usually comprising four primer classes.

intermediate department of secondary school: see '*intermediate school*'.

intermediate school: upper primary school existing either as a separate institution or as a department attached to a secondary school.

kindergarten: pre-primary school.

kindergarten teacher training centre: State-subsidized training course for teachers in pre-primary schools.

Maori school: primary school, chiefly for Maori children, controlled by Department of Education; may be either full primary school, contributing school or district high school.

secondary school, technical school or combined school: secondary school offering general and vocational courses, the emphasis varying from school to school.

special school: either a separate institution or special classes attached to a primary school providing primary education for physically or mentally handicapped children.

teachers' training college: institution providing teacher training courses at two levels, post-secondary and post-graduate.

SPAIN

escuela de comercio: vocational secondary school of commerce.

escuela de magisterio: teacher training school.

escuela maternal y escuela de párvulos (nursery school and infant school): types of pre-primary school, providing the initiatory stage (*período de iniciación*) of primary education.

escuela primaria: primary school; covers four stages: an initiatory or pre-primary stage; an elementary primary stage; an advanced stage; and a pre-vocational stage.

escuela técnica media: secondary level technical school; all pupils must take a preliminary or selective course (S) before beginning specialized technical studies (industrial, agricultural, etc.)

formación profesional industrial: industrial

vocational training covering three stages: pre-apprenticeship (*preaprendizaje*), apprenticeship (*aprendizaje*) leading to certification as an entered apprentice, and the course leading to qualification as skilled worker (*maestría*).

iniciación profesional: pre-vocational training (see *escuela primaria*).

instituto laboral: vocational secondary school; the complete 7-year course qualifies for admission to higher technical schools and pupils taking an appropriate bridge course (*curso de transformación*, shown as T) may go on to certain faculties of the university.

instituto o colegio (institute or college): State or private general secondary school; the secondary course proper leading to the upper bachelierato (see under examinations) lasts 6 years, but pupils wishing to continue at university are required to take an additional one-year pre-university course (P).

maestría: see '*formación profesional industrial*'.

preaprendizaje: see '*formación profesional industrial*'.

Examinations

bachillerato laboral elemental: lower vocational secondary certificate.

bachillerato laboral superior: upper vocational secondary certificate.

bachillerato preuniversitario elemental: lower general secondary certificate.

bachillerato preuniversitario superior: upper general secondary certificate, the basic qualification for university entrance.

certificado de estudios primarios: primary school certificate.

examen de ingreso: entrance examination.

título de maestro de enseñanza primaria: qualification as primary teacher.

título de profesor de enseñanza comercial: qualification as commercial teachers.

SWEDEN

anstalt för lägre yrkesutbildning: lower vocational training school of home economics (*hushållsarbete*), commerce (*handel*) and industry and trade (*industri och hantverk*).

daghem (fckskola): pre-primary schools.

fackskola för hushålls ekonomi: vocational training school of home economics.

folkhögskolorna: institutions offering part-time general secondary education for adults.

folkskola: an institution covering the period of compulsory schooling and comprising a primary infant department (see *småskola*), a primary school proper and one or two continuation classes at lower secondary level.

folkskoleseminarium: teacher training college.
 grundskola: nine-year basic school.
 gymnasium: State upper general secondary school with three streams, the *latinlinje*, emphasizing literary and classical studies, the *reallinje*, with scientific subjects, and the *allmänlinje*, emphasizing social studies and languages.
 gymnastiska centralinstitutet: teacher training school for teachers of physical education.
 handelsgymnasium: vocational secondary school of commerce.
 handelshögskola: school of economics.
 högre flickskola: municipal general secondary school for girls, with curriculum emphasizing home economics and related subjects.
 högre folkskola: lower general secondary school.
 lantbrukshögskola: college of agriculture.
 konsthögskola: vocational training school of fine arts.
 skogshögskola: college of forestry.
 småskola: lower infant department of primary school.
 realskola: State lower general secondary school.
 sjuksköterskeshögskola: vocational training school of nursing.
 socialinstitut: vocational training schools for social welfare workers.
 teknisk högskola: college of technology.
 tekniskt gymnasium: vocational secondary school for technical training.
 yrkesutbildningsanstalter: vocational training schools for pupils who have already had practical experience of domestic work (*hushållsarbete*), agriculture (*jordbruk*) and forestry (*skogsbruk*).

SWITZERLAND

Canton of Neuchâtel

cours professionnels d'apprentissage: part-time vocational training schools for apprentices.
 école d'agriculture: vocational training school of agriculture.
 école de commerce: vocational secondary school of commerce offering a diploma course (4 years), and a course for the commercial maturité certificate which admits to higher commercial education.
 école normale: teacher training school.
 école primaire: primary school.
 école de travaux féminins: vocational training school of home economics.
 école secondaire: lower general secondary school with *section classique*, comprising obligatory study of Latin, and Greek as an option; and *section moderne* without Latin or Greek. It is proposed to introduce a *section scientifique*.

école supérieure des jeunes filles: general secondary school for girls.
 gymnase: upper general secondary school organized in three sections: *section littéraire*, emphasizing classical and literary studies; *section scientifique*, emphasizing scientific studies; and *section pédagogique*, preparing for professional training as a teacher.
 scolarité obligatoire: period of compulsory full-time school attendance.
 section classique: see *école secondaire*.
 section littéraire: see *gymnase*.
 section moderne: see *école secondaire*.
 section pédagogique: see *gymnase*.
 section scientifique: see *gymnase*.
 technicum: vocational secondary school of industrial arts, including a section for the training of technicians, a section for the training of skilled workers, and an art school.

Canton of Ticino

casa dei bambini: pre-primary school.
 corsi per apprendisti: vocational training courses for apprentices.
 ginnasio: general secondary school.
 liceo: upper general secondary school.
 scuola d'arti e mestieri: vocational training school of crafts and trades.
 scuola di amministrazione: vocational secondary school linked with *scuola cantonale di commercio* and preparing for clerical careers in administration.
 scuola cantonale di commercio: cantonal vocational secondary school of commerce.
 scuola di avviamento professionale e commerciale: primary continuation school emphasizing pre-vocational training for industrial or commercial work.
 scuola di economia domestica: primary continuation school with course emphasizing home economics.
 scuola elementare: see *scuola primaria*.
 scuola maggiore: see *scuola primaria*.
 scuola obbligatoria: period of compulsory full-time school attendance.
 scuola primaria: primary school, comprising a lower (elementary) stage (*scuola elementare*) and upper stage (*scuola maggiore*).
 scuola magistrale: teacher training school for men and women primary school teachers (*maestri e maestre*). Separate sections or institutions train home economics mistresses (*maestre economia domestica*) and infant school mistresses (*maestre casa bambini*).
 scuola tecnica cantonale: cantonal vocational (technical) secondary school.

Canton of Zurich

Arbeitslehrerinnenseminar: specialized teacher training for teachers in trade schools for girls.

Fortbildungsschulen (complementary vocational schools): part-time vocational training schools, attendance at which is compulsory for young people not in a full-time school at secondary level; they are grouped in three main categories—agricultural and industrial (*landwirtschaftliche und gewerbliche*), commercial (*kaufmannische*), and home economics (*hauswirtschaftliche*) schools.

Frauenfachschule: vocational training school for women's trades.

Gymnasium: general secondary school of classical academic type.

Handelschule: vocational secondary school of commerce.

Haushaltungseminar: teacher training school for home economics mistresses.

Kindergärtnerinnenseminar: teacher training school for kindergarten mistresses.

Kleinkinderschule: pre-primary school.

Kunstgewerbeschule: vocational training school of arts and crafts.

Landwirtschaftliche Schule: vocational training school of agriculture.

Oberrealschule: general secondary school with scientific course.

Oberseminar: upper stage (professional training) at teacher training school.

Primarschule: primary school.

Schulpflicht: period of compulsory full-time school attendance.

Sekundarschule (upper primary school): school providing course at lower secondary level but forming part of the primary school system.

Technikum: vocational (technical) secondary school.

technische Schulen (2-4 Jahre): vocational (technical) training schools with various courses (2 to 4 years' duration).

Töchterchule: general secondary school for girls.

Töchterunterseminar: lower stage (general secondary studies) in girls' teacher training school.

Unterseminar: lower stage (general secondary studies) in teacher training school.

UNION OF SOVIET SOCIALIST
REPUBLICS

bibliotēnye i drugie gumanitarnye VUZy: higher education establishments of librarianship and other humanities.

detskij sad (kindergarten): pre-primary school.

doškol'nye učreždenija: pre-primary establishments.

ėkonomičeskie VUZy: higher education establishments of economics.

fizkul'turnye VUZy: higher education establishments of physical culture.

gorodskie professional'no-tehničeskie učilišča (urban vocational-technical schools): day and evening vocational training schools.

individual'no-brigadnoe učeničestvo na proizvodstve: production training for individuals or groups.

medicinskie VUZy: higher education establishments of medicine.

objazatel'naja nepolnaja srednjaja vosmiletnjaja trudovaja obšėobrazovatel'naja politehničeskaja škola: eight year school of general education (lit. compulsory incomplete secondary eight-year labour general polytechnical school).

pedagogičeskie VUZy: higher education establishments for teacher training.

polnaja srednjaja obšėobrazovatel'naja trudovaja politehničeskaja škola s proizvodstvennym obučeniem: complete secondary school of general education (lit. complete secondary eleven-year labour polytechnical school with vocational training).

professional'no-tehničeskoe učilišče: vocational technical school.

sel'skie professional'no-tehničeskie učilišča (rural vocational-technical schools): vocational training schools.

srednee specialnoe učebnoe zavedenie: specialized secondary school.

srednieškoly s proizvodstvennym obučeniem: secondary schools providing general and polytechnical education and production training.

tehničeskie VUZy: higher education establishments of technology.

universitet: university.

vos'miletnjaja škola (8-year school): school covering the period of compulsory school attendance and providing a general and polytechnical education.

VUZ: abbreviation for *vysšee učebnoe zavedenie*, higher education establishment.

vysšie učebnye zavedenija iskusstva: higher education establishments of arts.

UNITED ARAB REPUBLIC

al-ma'had al-'ālī al-sinā'ī lil-mu'allimīn: higher institute preparing teachers for technical secondary schools.

al-ma'had al-'ālī al-thaqāfī lil-banāt: higher cultural institute for girls.

al-ma'had al-'ālī lil-tadbīr al-manzīl: higher institute of home economics.

al-ma'had al-'ālī li-sh'ūn al-qutn: higher institute for the study of cotton.

dār al-ʿulūm : faculty of Arabic studies.
 dūr al-muʿallimīn : teacher training schools.
 ḥadāna : pre-primary school.
 ḥifẓ al-Kurʿān : Koranic schools.
 ibtidāʾī : primary school.
 ibtidāʾīyat al-Azhar : primary section of schools providing the al-Azhar course.
 iʿdādī (preparatory) : schools referred to in text as 'preparatory' are categorized here as 'lower secondary'.
 iʿdādī ʿām : lower general secondary school.
 iʿdādī ʿamalī (practical preparatory) : lower general secondary school with terminal course.
 iʿdādī fannī : technical lower secondary education.
 iʿdādī kulliyāt al-sharīʿa : specialized lower secondary school with training in Islamic law.
 iʿdādī mushtarak : multilateral lower vocational secondary school.
 iʿdādī sināʾī : lower vocational secondary school for industrial occupations.
 iʿdādī tijārī : lower vocational secondary school of commerce.
 iʿdādī zirāʾī : lower vocational secondary school of agriculture.
 maʾāhid al-muʿallimīn wal-muʿallimāt : higher teachers' institutes providing training in art, music and physical education.
 madāris al-muʿallimīn wal-muʿallimāt alʿamah wal-rūfiya : general and rural teacher training schools.
 madrasat al-alsun : school of languages.
 madrasat al-mumarridāt wal-hakīmāt : nursing and midwifery school.
 maʾhad al-funūn al-masrahiyah : institute of dramatic arts.
 shuʿbat al-ādāb : literature section.
 shuʿbat al-ʿulūm : science section.
 thānawī ʿām : upper general secondary school with differentiation into literature and science courses.
 thānawī fannī : technical upper secondary education.
 thānawī kulliyāt al-sharīʿa : specialized upper secondary school with training in Islamic law.
 thānawī mushtarak : secondary polytechnical school.
 thānawī nisawī : upper vocational secondary school for girls.
 thānawī sināʾī : upper vocational secondary school for industrial occupations.
 thānawī tijārī : upper vocational secondary school of commerce.
 thānawī zirāʾī : upper vocational secondary school of agriculture.
 thānawīyat al-Azhar : secondary section of schools providing the al-Azhar course.

UNITED KINGDOM

England and Wales

bilateral school : a secondary school providing clearly defined and separate courses for two of the following kinds of secondary education—grammar, modern, technical. (see 'secondary grammar school', 'secondary modern school', 'secondary technical school'.)
 comprehensive school : a large secondary school combining grammar, modern and technical education. (see 'secondary grammar school', 'secondary modern school' and 'secondary technical school'.)
 direct grant school : the premises are owned by an independent non-profit making body who are responsible entirely for the conduct and finance of the school, but the Ministry gives grants directly to the school based on the number of pupils. Fees may be charged but the amount is subject to the approval of the Ministry; a number of free places must be reserved for children from maintained primary schools. They are usually grammar schools but there are some nursery and technical schools.
 evening institute : evening classes are held either in evening institutes or as part of the activities of technical colleges (see below) and provide the widest possible variety of courses for persons of all ages who have left school. Tuition ranges from preparation for the General Certificate of Education and external degrees of London University through vocational, technical and commercial courses and liberal humanistic studies to recreational subjects such as dancing.
 General Certificate of Education : the main external examination for secondary school pupils in England and Wales.
 independent school : the premises are held, and the school conducted by a proprietor or other profit-making body or by a non-profit-making or charitable body. No grant is received from public money but such schools are open to inspection by the Ministry. The schools commonly known as 'public schools' are for the most part independent schools.
 nursery class : a class for children of about 3 to 5 years attached to an infant school or department.
 nursery school : a self-contained school for children between the ages of 2 and 5 years, that is, under compulsory school age.
 primary school : a school providing separate primary education for children aged 5 to 11 years; may be for 'infants' only (5 to 7), for 'juniors' only (7 to 11) or for both.

school of art : an establishment similar in character to the technical college, but providing courses in all forms of pictorial and plastic art, including industrial design and also courses leading to the Ministry's diplomas and certificates for art teachers.

school of music : normally provides full-time courses for students who have left school and wish to train either as professional musical performers or as specialist teachers of music in schools.

secondary grammar school : provides an academic, liberal education in a course planned to lead to university education.

secondary modern school : provides general education with a practical bias influenced by local circumstances and environment.

secondary technical school : provides a course of general education with a technical bias.

selection examination commonly known as 'the 11+ examination' : objective tests of reading, writing, arithmetic and intelligence, taken by all primary school children at about 11 years of age to indicate the kind of secondary education best suited to them ; open also to children in private schools but not compulsory for them. A number of education authorities are experimenting with other methods of selection.

sixth form : the highest classes of the grammar-type schools, usually tending to specialize either in the arts or the sciences, and planned as direct preparation for university entrance.

special school : school for physically or mentally handicapped children with compulsory attendance to the age of 16. Courses provide, to the extent that the disability will allow, an education similar to that provided in primary and secondary schools for normal children.

technical college : an establishment providing scientific, technical and commercial education as distinct from industrial training for persons who have finished their compulsory education in a school. Courses may be full-time or part-time during the day or in the evening. At the highest level, technical colleges provide technological education parallel with universities.

training college : an establishment providing education and professional training for teachers.

universities : these are in no way under the control either of the Ministry of Education or other Government Department. They are self-governing institutions but receive grants from the State through the agency of the University Grants Committee, a body of persons experienced in university administration and education.

Scotland

junior secondary school : lower secondary school providing general education but with curriculum including commercial, technical, home economics and rural courses.

senior secondary school : general secondary school leading to university entrance but including a number of non-academic courses.

special school : school providing pre-primary, primary and secondary education for handicapped children.

Northern Ireland

grammar school : general secondary school.

independent school : private school providing pre-primary and/or primary and/or general secondary education.

preparatory department of grammar school : primary classes attached to a general secondary school.

secondary intermediate school : lower general secondary school with pre-vocational bias.

special school : school providing primary and secondary education for mentally or physically handicapped children.

technical intermediate school : vocational secondary school.

training school : school providing primary and secondary education for delinquent or vagrant children.

UNITED STATES OF AMERICA

college : (a) an institution of higher education usually offering a curriculum in the liberal arts and sciences, and frequently one or more professional curricula in addition ; empowered to confer bachelor's degrees for four-year programmes and/or associate degrees for two-year or three-year programmes beyond the secondary school ; (b) that undergraduate division of a university which corresponds in programme and function to (a) ; (c) in broad usage, any institution of higher education, including two-year institutions.

community college : a two-year institution of higher education, generally public, offering instruction adapted in content, level, and schedule to the needs of the community in which it is located. Offerings usually include a transfer curriculum (credits transferable toward a bachelor's degree), occupational (or terminal) curricula, general education, and adult education. So far as possible, courses are offered in morning, afternoon, or evening hours according to the general convenience of the students. In addition to organized curricula, offerings may also include short courses, special lectures, etc.

of interest to the community or to groups therein. Since most of the students live within the community, residential facilities are usually absent or quite limited. The term 'community-college' generally refers to an independently organized institution (either public or private), or to one which is organized as part of a local public school system. Where there is no hard-and-fast distinction between the terms 'community college' and 'junior college', the former is more community-centred with respect to both curriculum and administration; it is also more likely to derive a larger portion of its funds from local sources (including local taxes), and to be more largely under purely local control.

elementary school : primary school; a school classified as elementary by State and local practice and composed of any span of grades not above grade 8. A nursery school or kindergarten school is included under this heading only if it is an integral part of a regularly established school system.

four-year high school : a four-year secondary school immediately following elementary school in an 8+4 or in some instances 7+4 plan. This includes four-year vocational and trade high schools.

graduate school : a major division of a university offering programme of study usually in the liberal arts and sciences, and generally requiring for admission a bachelor's or a first professional degree. The programmes lead to an advanced degree (beyond the bachelor's or first professional); either the master's or the doctoral degree (Ph. D. or equivalent, such as Sc.D.).

junior college : (a) a two-year institution of higher education which (i) offers a transfer curriculum (credits transferable toward a bachelor's degree); (ii) frequently also offers occupational (or terminal) curricula designed to prepare the student for a career at the semi-professional or technician level, and (iii) may also offer other types of curriculum, such as general education, adult education, short courses, special lectures, etc. Completion of a two-year curriculum is generally recognised by the academic associate degree. The public junior college is often called a community college. Private junior colleges are usually administered by church groups or independent boards of trustees. The term 'junior college' generally refers either to an independently organized institution (public or private), or to one which is part of a public elementary-secondary school system; the term does not

ordinarily refer to the lower division of a four-year institution, even if the lower division is on an entirely different campus from the parent institution (such an off-campus division would constitute a 'branch campus' or 'extension centre'). (b) Loosely, any post-high school two-year educational institution.

junior high school : a separately organized secondary school intermediate between elementary and senior high school.

kindergarten : a group or class that is organized to provide educational experience for children for the year immediately preceding the first grade. A kindergarten may be organized as a grade of an elementary school or as a part of a separate kindergarten school. In some school systems, such a group is called 'pre-primary' or 'junior primary'.

nursery school : a beginning group or class that is organized to provide educational experiences for children for the year or years immediately preceding the kindergarten and conducted during the regular school year. These groups are sometimes called 'pre-primary groups', 'child care centres', or 'co-operative nursery schools'. A nursery class may be organized as a grade of an elementary school or as a part of a separate nursery school.

professional school : an institution organized as a major division of a college or university, which provides education and training leading to a degree in a professional field. Examples of degrees conferred include : B.S.E. (engineering), B.S.Ed. (education), LL.B. (law), B.D. (divinity), M.D. (medicine), B. Arch (architecture), etc. Schools for some professions admit students who have graduated from secondary schools; schools for other professions admit only students who have completed a pre-professional curriculum in a college of arts and sciences.

independently organized professional schools : these are institutions characterized, first, by their independent organization (i.e., they are not part of a university or any other educational institution); and second, by their curricula, which are designed to fulfil the academic requirements for practice of a profession (such as medicine, dentistry, optometry, law, architecture, engineering, etc.) Independently organized professional schools may be either publicly or privately controlled (the term 'independent' does not refer to the type of control). It should be emphasized that professional training is also (and, in fact, more largely) supplied by the universities. The 'independently organized professional schools'

include : (a) teachers' colleges which are devoted primarily to teacher training—usually to the training of elementary school teachers (high school teachers are more often trained in the universities and liberal arts colleges) ; (b) technological schools which provide training predominantly in engineering and/or physical-science disciplines. The 'technological schools' should not be confused with 'technical institutes' which provide two-year curricula or semi-professional training at the technician, rather than the professional level ; (c) theological and religious schools which offer programmes wholly or principally in the areas of theology, religion, or religious education ; (d) schools of art which offer programmes specializing in painting, sculpture, design, music, dramatic arts, etc. ; (e) other independently organized professional schools, not classified above which offer programmes directed to one or more fields of professional specialization not specified above, such as medicine, business, pharmacy, etc. It should be noted that, in general, the programmes of instruction in independently organized professional schools are not limited to courses that would be identified as strictly professional. Liberal arts subjects are usually either offered as electives or are usually either offered as electives or are required as pre-requisites for the professional degrees.

semi-professional school : a two-year independently organized institution of higher education offering courses which frequently lead to the associate degree. It is designed primarily to prepare students for immediate employment in the non-engineering-related occupations. Credits earned may be applicable in whole or in part toward the bachelor's degree in some four-year institutions. The term 'semi-professional school' is usually restricted to two-year institutions of higher education other than technical institutes. The courses offered may include, for example, medical laboratory technology, hotel management, commercial art, nursing, secretarial training, Bible studies, accounting.

senior high school : a school offering the final years of high school work necessary for graduation and leading to the high school diploma ; invariably preceded by a junior high school in the same system.

technical institute : an independently organized two-year institution of higher education, or an officially designated division or department within a two-year or four-year institution, which offers one or more occupational

(terminal) courses of study designed primarily to prepare students for immediate employment in an engineering-related occupation (or cluster of occupations) rather than for further study toward a bachelor's degree. The courses are generally two years in length (but may extend to three), and usually lead to an associate degree or equivalent formal award (such as a certificate or diploma.) Credits earned may be applicable in whole or in part toward the bachelor's degree in some four-year institutions. Illustrative technical institute curricula include : electronic technology ; aeroplane engine maintenance ; air conditioning, heating, and refrigeration ; tool and die design ; programming techniques ; etc. Technical institutes may also offer other types of instruction, e.g., one-year courses, curricula at the craftsman-clerical level, special short courses, etc.

university : a complex institution of higher education usually comprising a college of liberal arts and sciences, two or more professional schools, and a graduate school. These institutions of higher education stress graduate instruction (i.e., instruction beyond the level of the bachelor's or first professional degree). The universities confer advanced degrees (at least the master's and usually the doctorate) in a variety of liberal arts, science, and professional fields.

YUGOSLAVIA

gimnazija : general secondary school.

klasična gimnazija : general secondary school with classical course.

osnovna škola : primary school.

škola s praktičnom obukom : practical vocational training school.

škola za učenike u privredi : vocational training school for apprentices.

škola za vaspitače : pre-primary teacher training school.

srednja baletska škola : vocational training school of ballet dancing.

srednja ekonomska škola : vocational secondary school of commerce.

srednja fiskulturna škola : vocational secondary school of physical education.

srednja gradjevinska škola : vocational secondary school of building and public works.

srednja hidrometeorološka škola : vocational secondary school of meteorology.

srednja medicinska škola : vocational secondary school for nurses and other health workers.

srednja muzička škola : vocational secondary school of music.

srednja poljoprivredna mašinska škola : vocational secondary school for specialists in agricultural machinery.
srednja poljoprivredna škola : vocational secondary school of agriculture.
srednja rudarska škola : vocational secondary school of mining.
srednja saobraćajna škola : vocational secondary school for transport technicians.
srednja škola za medicinske tehničare : vocational secondary school for medical laboratory workers, radiologists, etc.
srednja šumarska škola : vocational secondary school of forestry.

srednja tehnička škola : vocational secondary school.
srednja umetnička škola : vocational secondary school of fine arts.
srednja veterinarska škola : vocational secondary school of veterinary science.
učiteljska domaćićka škola : specialized training school for teachers of home economics.
učiteljska škola : primary teacher training school.
ustanove za preškolsko vaspitanje : institutions for pre-primary education.
viša gimnazija : upper general secondary school.

ART II
MEN OF LEARNING
IN
THE FIELD OF EDUCATION

WORLD EDUCATORS AND EDUCATIONISTS



GREAT TEACHERS OF ANCIENT INDIA



WHO'S WHO IN INDIAN EDUCATION

WORLD EDUCATORS AND EDUCATIONISTS

A

Abelard, Peter (1079-1142) : the most famous teacher of the 12th century born near Nantes ; claimed to have forced William of Champeaux to revise his statement of the nature of the universals. His stimulating rationalism and remarkable range of reading aroused intellectual enthusiasm which attracted thousands of students to Paris and helped to develop, a generation after his death, the cathedral school of Notre Dame into the 'universitas'.

Abhaya Kara Gupta : see under 'Great Teachers of Ancient India'.

Abhipratarn Kakaseni : see under 'Great Teachers of Ancient India'.

Abul Fazl (16th century A.D.) : a man of profound learning and commanding intellect ; a friend and trusted adviser of Akbar ; wrote *Akbar Nama* and *Ain-i-Akbari* which throw a flood of light on the social, economic, religious and administrative aspects of the Mughal rule and particularly on the reign of Akbar. Such was the fervour for education during the period that he wrote enthusiastically, 'All civilized nations have schools for the education of youths but Hindustan is particularly famous for its seminaries'.

Acland, Thomas Dyke (1809-1898) : one of the founders of the University Local Examinations for Secondary Schools in England ; declared in favour of retaining religious instruction in elementary schools ; contributed to the movement which furnished an authoritative test to the results of teaching in secondary schools ; opposed any educational monopoly on the part of the secular State.

Adams, John (1857-1934) : professor of educa-

tion in the University of London, and director of the London Day Training College; brilliant teacher and prolific writer on educational subjects ; exercised an important influence upon educational thought during the first quarter of the 20th century ; stressed the claims of psychology in education, as he wrote : 'Verbs of teaching govern two accusatives—the master taught John Latin. He must know Latin and he must know John.' His earliest important work *The Herbartian Psychology Applied to Education* (1897) had a decisive influence in focusing the attention of the teacher on the child. His other works include *The Evolution of Educational Theory* (1912), *Modern Developments in Educational Practice* (1922), *Errors in Schools* (1927).

Adams, William (19th century A.D.) : A native of Scotland, reached Serampore on March 19, 1818, became a Unitarian, took a prominent part in the public life of Calcutta ; came under the influence of Raja Ram Mohan Roy ; studied Bengali and Sanskrit ; a supporter of mass education and a generous patron of learning ; submitted three reports on 'The State of Education in Bengal' ; left India in 1838 and spent the rest of his life in the U.S.A.

Addison, Joseph (1672-1719) : English essayist and journalist : tried to secure educational reforms through the periodical 'Spectator' started in 1711. He wrote : 'The boasted liberty we talk of is but a mean reward for the long servitude, the many heartaches and terrors, to which our childhood is exposed in going through a grammar-school'. He believed : 'What sculpture is to a block of marble, education is to a human soul.'

Adler, Alfred (1870-1937): Austrian psychiatrist and psychologist, founded the school of Individual Psychology; became openly critical of Freud's over emphasis on sexual factors and broke with him in 1911; saw human behaviour determined not by the biological forces of instinct but by social forces, and social attitude and interest are developed through learning experiences; while Freud emphasized the unconscious, Adler the conscious; Freud stressed the role of the past, while Adler believed that anticipations of future goals influence the present behaviour; declared that all men strive towards the final goal which is Superiority; contended that a feeling of inferiority is the prime determining force in behaviour, for instance, an individual goaded by the feeling of inferiority directs his efforts in compensating and over-compensating his defects. His two major works are *The Practice and Theory of Individual Psychology* (1927) and *Social Interest* (1933).

Adler, Felix (1851-1933): American educator and reformer; founded the American Ethical Union and the Society for Ethical Culture in New York; did useful social work in areas like Kindergarten, manual training schools and the abolition of child labour; influenced educational methods and social reforms; wrote *Creed and Deed* (1878) and *Moral Instruction of Children* (1892).

Ajāt Śatru: see under 'Great Teachers of Ancient India'.

Ajāyapala (12th century A.D.): a Buddhist scholar who wrote a lexicon '*Nanarthasamgraha*' available only in manuscript.

Albertus Magnus (1193-1280): perhaps the most learned of all medieval schoolmen, and therefore called the 'universal doctor'; a follower of Aristotle, teacher of Thomas Aquinas, author of 21 folio volumes, bold theologian, master of dialectical method; greatly skilled in the science of his day; served as Provincial of his order in Germany, and then as Grand Master of the Palace to Pope Alexander IV, and finally as Bishop of Ratisbon. His *Summa Theologiae* and *Commentary on the Book of Sentences* are among the great literary achievements of medieval scholarship.

Alberus, Erasmus (c. 1500-1553): German pastor and schoolmaster; began as teacher and became the general superintendent of the churches of Brandenburg; author of a dictionary, a book of morals and several pedagogic writings in which he condemns barbarous methods of corporal punishment given in schools.

Alcott, Amos Bronson (1799-1888): American

educator and author; introduced innovations and reforms in Cheshire School and then in Temple School at Boston. His educational experiments and methods, in some respects an exposition of the Pestalozzian method, shocked the traditional schoolmen. He published *Observations on the Principles and Methods of Infant Instruction* (1828), and *Conversations with Children on the Gospels* (1836).

Alcuin (735-804): English ecclesiastic, writer, teacher, and confidential adviser to Charlemagne. His reputation as a great teacher rested upon the fact that he was a simple, sincere and honest man of learning; trained each pupil differently and individually according to his best ability; adjusted the material to be studied to the capacities of the learners; believed that the duty of a teacher was to draw out each pupil's latent power 'Just as a man strikes out of a flint the fire'. His method of instruction was largely based on informal conversations as there were few books, and few pupils could read. He also served the cause of education by correcting and copying manuscripts, and thus protecting whatever learning was available. Like a gentle spirit he led others into better ways of living; like a true teacher and scholar stimulated his pupils to carry on the tradition of learning through two dark centuries of Europe.

Alden, Joseph (1807-1885): educator and author, principally known as a pedagogue; became a teacher at the age of fourteen; served as a principal of the State Normal School at Albany, New York, from 1867 to 1882; wrote more than seventy books dealing with subjects like philosophy, religion and government in such a way as they were popularly acceptable for classroom use. *The Science of Duty* (1886), *The Science of Government* (1867) and *Thoughts on the Religious Life* (1879) were the most popular books.

Aelfric, Archbishop of Canterbury (—d. 1005): He laid the basis of the parochial system of education in England through the promulgation of his canons. Canon 20 reads: 'Let Priests have schools in the townships and small villages, and if any of the faithful wish to commend to them his little children for learning of letters, let them not refuse to receive and teach them when therefore they teach them, let them demand nothing from them, in the way of reward for this.'

Alsted, Johann Heinrich (1588-1638): German theologian, professor of philosophy and author of more than 120 volumes. Comenius owed to him his first impulse towards didactic studies. He considered education as a branch of

the history of culture and a handmaid of divine truth.

Amoros, Francis (1769-1848) : one of the pioneers of physical education in France ; was born in Spain, entered the Spanish army, held high administrative positions, and was entrusted with the education of the young prince Don Francisco de Paula. In 1814, he had to flee from Spain, and found a refuge in France where he was appointed director of the Military Gymnasium of Paris.

Anagnos, Michel (1837-1906) : American leader of the education of the blind ; was born and educated in Greece ; came to America, became the director of the Perkins Institution of the Blind and held the position for 30 years. He inaugurated many progressive movements including the securing of the first permanent fund for the printing of books for the blind and introducing kindergarten features in the schools for the blind.

Andrea, Johann Valentin (1586-1654) : German educator ; travelled widely in France, Switzerland and Italy ; placed great emphasis upon sense impressions ; stressed the study of mathematics and history ; believed that the aim of education was to enable an individual to worship God with a 'pure and faithful soul', to strive towards 'the best and most chaste morals', and to 'cultivate the mental powers' ; published *Christianopolis* (1619), a sort of Christian Utopia.

Angell, James Rowland (1867-1949) : American psychologist ; studied under Dewey and James ; became president of Yale University (his grandfather and father had also been presidents of different universities) ; helped to develop the Institute of Human Relations at Yale ; was elected president of the American Psychological Association in 1906 ; shaped the functionalist movement into a working school and made the psychology department at Chicago the training ground for functional psychologists ; held that the important function of consciousness is to improve the adaptive activities of the organism and, therefore, it is necessary to study how the mind helps this adjustment of the organism to its environment.

Annie Besant (1847-1933) : a great educationist and theosophist, an English lady who adopted Hindu way of life ; came to India in November 1893 ; established the Central Hindu College for women in Banaras ; gave a new life to the theosophy movement ; became Congress President (1918). She believed that the educational system of India must be shaped in accordance with the ideals of ancient India : 'We need not look, let us not look to the West

for power in our education, for lofty purpose in our education, for truth in our education. Let us cease to believe that education of the West is the ideal for the East. Far from it. For some parts of the body, we may well go to the West. But for the soul never.... Only with an education full of Indian unity, full of Indian simplicity, full of Indian purpose, full, that is, of Indian life, can India be herself.' She believed, 'religious principles must come first and foremost in every perfect system of education'. She advocated the use of mother tongue as the medium of instruction. 'Nothing denationalizes a people as the imposition upon them of a foreign tongue, dominating their life and thought.' She insisted that Brahmacharya or celibacy was necessary for young people for their intellectual, physical and emotional growth ; opened organizations like 'Sons and Daughters of India', 'Scouts and Guides' ; launched a plan for a Central Hindu University which was aided by a most influential Board of Trustees including Pt. Madan Mohan Malaviya ; became an esteemed member of the court, the council and various other bodies of the university.

Apararka (12th century A.D.) : a famous commentator on Yajñavalkya ; author of 'Yajñavalkya Dharma Sastranibandha'. He describes the circumstances permitting the teacher's receipt of money from his pupils and explains that teaching by stipulation for payment of fees is forbidden. According to Apararka, beating a pupil should be resorted to only for correction.

Aquinas, St. Thomas (1225-1274) : the greatest scholastic philosopher of the Middle Ages ; studied first at the Benedictine monastery of Monte Casino, and later at the University of Naples ; attained great fame as a teacher of philosophy and theology. The treatise *De Magistro* includes discussion about 'teacher' and 'teaching'. The *Opusculum De Eruditione Principum* discusses the duties of parents regarding the education of their children. He lists the qualities that a teacher should possess : ability, correct living, humble knowledge, eloquence and skill in teaching. He says that the human mind contains the seeds of knowledge, i.e., general principles, and it is the duty of the teacher to propose general principles to the mind of the pupil and then to help him in passing to particular applications : that teaching is an art and the first rule of art is to follow nature ; that one should begin by what is less difficult and then proceed by easy steps to more difficult questions.

Aristotle (384 B.C.-322 B.C.) : tutor of Alexander of Macedon and head of the Lyceum. Aristotle's scheme of education is to be found in the Seventh and Eighth Books of *Politics* and closely follows the lines of Plato's scheme as given in the Seventh Book of the *Laws*. Education has been considered as a branch of the practical science of politics.

Arnold Matthew (1822-1888) : son of the famous headmaster, Dr. Thomas Arnold of Rugby ; poet and one of the great English literary critics ; served as one of the most brilliant inspectors of schools in England for over thirty years ; wrote valuable reports on the educational systems of France, Germany and Holland ; supported the campaign for a national educational system and for compulsory training of teachers.

Arnold, Thomas (1795-1842) : famous headmaster of Rugby School in England ; often regarded as the founder of the modern public school system ; developed the prefectorial system ; stressed truthfulness, honesty, kindness and the understanding of religion as the foundation of life and conduct.

Arun Aupavesi Gautama : see under 'Great Teachers of Ancient India'.

Arya Deva : see under 'Great Teachers of Ancient India'.

Asanga, Arya : see under 'Great Teachers of Ancient India'.

Ascham, Roger (1515-1568) : English educator ; taught Princess (afterwards Queen) Elizabeth ; became Latin Secretary to Queen Mary ; wrote *Toxophilus* (1554) and *Scholemaster*. *Toxophilus* advocates archery as a pleasant and patriotic form of exercise and highlights physical education, against bookish learning. *Scholemaster*, published after his death, is a great educational work which gives accounts of actual teaching ; suggests reforms ; condemns corporal punishments ; compares the method of experience with that of learning and shows that the school of experience is very costly ; advocates double translation method of learning Latin, translating a Latin passage into English, correcting it, retranslating it into Latin and comparing it with the original passage.

Asuri : see under 'Great Teachers of Ancient India'.

Asvala : see under 'Great Teachers of Ancient India'.

Asvapati Kaikeya : see under 'Great Teachers of Ancient India'.

Atidhanavan Saunaka : see under 'Great Teachers of Ancient India'.

Atisa, Dipamkara : see under 'Great Teachers of Ancient India'.

Augustine, St. (354-430) : Bishop of Hippo and one of the famous Latin Fathers ; was born in Algeria ; took keen educational interest in exhibiting the Latin culture at a time when the Western Empire reached its pedagogic culmination and thus revealed one of the causes of educational and cultural decay. His work *De Magistro* discusses many of the fundamental problems of educational theory.

Aurobindo, Sri (1872-1950) : the most famous Indian philosopher, educator and sage who retired from his revolutionary political activities in 1910, and settled at Pondicherry in search of a more complete experience harmonising the two ends of existence, spirit and matter ; believed that it is possible for the mind to rise to a greater divine consciousness and then to re-descend with its spiritual gains of light, power and bliss to transform this life. He went to England at the age of 7 and lived there for 14 years ; besides English, he mastered Latin and Greek and also learnt French, German, Italian and Spanish ; after his return in 1893 joined Baroda College and devoted himself to self-culture and literary activity, learnt Sanskrit, Marathi, Gujrati and Bengali and drank deep in the philosophy and culture of India ; in 1908, was arrested for his political activities and put into jail where he remained for a year. During this period his view of life was radically changed, as in the jail he had spent almost all his time in reading the Gita and Upanishads and in intensive meditations and practice of Yoga. He stressed that education must build the powers of human mind. 'Its central aim is the building of the powers of the human mind and spirit ; it is the formation or, as I would prefer to view at the evoking of knowledge, character, culture.' He had an immense faith in the potentialities of children. 'Almost every child has an imagination, and instinct for words, a dramatic faculty, a wealth of idea and fancy...every child is a lover of interesting narrative, a hero-worshipper and a patriot... Every child is an inquirer, an investigator, analyser, a merciless anatomist... Every child has an insatiable intellectual curiosity and thirst for metaphysical enquiry... Every child has the gift of imitation and a touch of imaginative power.' The chief aim of education, therefore, should be 'to help the growing soul to draw out that in itself which is best and make it perfect for a noble use'. He believed that the first thing to do in order to be able to educate the child is to educate

oneself ; that saying good words, giving wise advice to a child has very little effect, if one does not show by one's living example the truth of what one teaches, and that the child should not be scolded except with a definite purpose and only when quite indispensable. Sri Aurobindo's Ashram at Pondicherry has become a great centre of learning and spiritual pursuits. His educational philosophy will be found in *A Sound System of National Education* and *Sri Aurobindo and the Mother on Education*.

Ausonius, Decimus Magnus (c. 310-394): Roman professor at Bordeaux, tutor of the future emperor, Gratian ; represented the last stages in Roman education ; his verses throw consi-

derable light on the methods and character of Roman education of that time. The education had become wholly verbal, dominated by grammar and rhetoric ; imitation rather than originality characterized the school work ; education became artificial and removed from life.

Azad, Abul Kalam (1888-1958) : the youngest President of the Indian National Congress ; first Education Minister in Free India for about 11 years ; gave a broader orientation to the educational policies of the Government of India ; appointed the University Education Commission and the Secondary Education Commission.

B

Bach, Alexander Dallas (1806-1867) : American educator and author, first president of the National Academy of Science ; gave the earliest comprehensive account of European school systems in his *Report on Education in Europe* (1839) after visiting 278 different institutions ; was an advocate of physical training in schools and education of women.

Bacon, Francis (1561-1626) : English philosopher, statesman, and man of letters who enormously influenced educational thought in the 17th century ; held that knowledge was a means to gain power over the environment and such knowledge could be acquired by the inductive analysis of natural facts. He substituted induction for deduction in the study of nature, thus bringing 'sense-realism' in education.

Baden-Powell, Lord (1857-1941) : founder of the Boy Scouts and Girl Guides movements ; served in the army in India and Afghanistan and then in South Africa ; laid the foundation of the scout movement in 1907.

Bagley, William Chandler (1874-1946) : American educator who preferred to be listed in *Who's Who* as 'teacher', rather than as 'educator' or 'professor' ; he was a leading exponent of a modified form of traditionalism and the chief critic of progressive education ; strongly advocated that the function of the school is to induct each generation into its social heritage ; tried to stabilize educational aims and methods on things tried and true in experience ; helped to organize the group known as the Essentialists who believed in

directing more attention to systematic work and to the fundamentals established by tradition.

Baldwin, James Mark (1861-1934) : American philosopher and psychologist ; studied for some time under Wundt at Leipzig ; founded two psychological laboratories (Universities of Toronto and Princeton) and restored the Johns Hopkins Laboratory ; was a strong advocate of evolution and propounder of a theory of organic selection according to which the individual through effort, is constantly learning to adapt to his natural inheritance ; contributed a body of knowledge to developmental psychology and psychology of emotion ; was a prolific writer and founder of several psychological journals ; published *Mental Development in the Child and the Race* (1894), and *History of Psychology* (1913) ; edited *Dictionary of Philosophy and Psychology* (1901-06).

Bain, Alexander (1818-1903) : Lord Rector of the University of Aberdeen ; wrote largely on psychological and logical subjects. In his *Education as a Science* he shows how education is concerned with 'the efforts of the grown-up part of the community to inform the intellect and mould the character of the young'. He however, excludes physical education, technical and professional education from the conception of education.

Banerjee, Gooro Dass (1844-1918) : the first Indian vice-chancellor and the only Hindu Member of the Indian Universities Commission (1902) ; placed a Note of Dissent that the

recommendations of the commission was an attempt to place education under the control of government and to reduce the control of popular element; he observed 'I have ventured to think that the solution arrived at is only a partial solution of the problem and that we should aim not only at raising the highest but also at broadening the base'; took an active part in the activities of the 'Dawn Society' for the propagation of education in the country.

Barnard, Frederick Augustus Porter (1809-1889): the tenth president of Columbia University and author of numerous textbooks and books on education; one of the incorporators of the American Association for the Advancement of Science and of the National Academy of Science.

Barnard, Henry (1811-1900): an American educator, graduated from Yale and attended the Yale Law School; was chancellor of the University of Wisconsin (1858-60), and President of St. John's College Annapolis (1866-67); in 1867 became the first U.S. Commissioner of Education and served that post till 1870; a leading figure in the public school movement; published *The American Journal of Education* (1855-1882), the *Connecticut Common School Journal*, and 52 works on the history and theory of education and accounts of European and American school systems.

Barnardo, Thomas John (1845-1905): founder of the Barnardo homes for destitute children in England, the first home opened in 1870; also opened a 'navy' school and a technical school; rescued more than 60 thousand children from destitution and provided 'homes' for them with the support of philanthropists.

Basedow, Johann Heinrich (1724-1790): German school reformer; voluminous writer; greatly influenced by Rousseau's *Emile*; was familiar with the pedagogy of Comenius and Locke; set up a small school for boys of the upper class of society and called it 'Philanthroponum'; an ardent advocate of State education and urged the establishment of a State superior council for the supervision of Public Instruction; wrote: 'All our knowledge comes from the senses, and experience of things is our teacher'; taught all languages by the direct or conversational method and by means of games; insisted that discipline must not be harsh; wrote *Book of Methods for Fathers and Mothers of Families and Nations* (1770), and *The Elementary Book*.

Beale, Dorothea (1831-1906): an English schoolmistress who became one of the great champions for the higher education of girls

and women in England; principal at Ladies' College, Cheltenham; president of the Association for Headmistress; tried to secure for girls and women an education for life in the widest sense; helped in the opening of many schools and colleges.

Beecher, Catherine Elizabeth (1800-1878): pioneer in the movement for higher education of women in the United States; she believed that there should be educational facilities for women which should be equal in every respect to those of men; founded the Hartford Female Seminary in 1828 which remained the leading institution for higher education for women; at a later date she founded a similar seminary at Cincinnati; travelled all over the country lecturing upon educational subjects and creating public interest for the higher education of women; organized the Women's Education Association 'to aid in securing to women a liberal education, honourable position and remunerative employment so that they become successful wives, mothers and housekeepers'; was the first woman who participated in the American Association for the Advancement of Education; published *The Moral Instructor* (1838), *Religious Training of Children* (1864) and *Woman's Profession as Mother and Educator* (1871).

Bekhterev, Vladimir M. (1857-1927): Russian physiologist, neurologist, and psychiatrist; contemporary of Pavlov, became interested in 'conditioning' independent of Pavlov; worked in the Military Medical Academy in St. Petersburg; founded the Psychoneurological Institute where he conducted research; extended the Pavlovian conditioning principle to motor conditioning response; stressed the completely objective approach to psychological phenomena; published *Objective Psychology* (1907).

Bell, Andrew (1753-1832): founder of the 'monitorial system' of instruction in which older pupils teach their juniors. As superintendent of the Military Male Orphan Asylum at Madras he was forced to take the help of older pupils as the school was badly in need of teachers, and the practice came to be known as 'Madras System'. On his return to England he disseminated the plan, and the system was carried out on a large scale. He also influenced the teaching in elementary schools. In 1805, he met Lancaster who also introduced the system in schools.

Bentham, Jeremy (1748-1832): utilitarian philosopher and reformer of English law and educational administration. His philosophy was based on the belief that pain and pleasure determine human behaviour and any human

act is motivated by self-interest. He opposed religious tests at the older universities; pleaded that the teaching in middle-class schools should be directed towards a useful social end and physical science should have a prominent place in the secondary education; urged for universal elementary education where one should learn to subordinate individual happiness to that of the whole community.

Berkeley, George (1685-1753): Locke's immediate successor in British empirical philosophy; gave generous donation to Yale College and became interested in the development of Harvard College; his philosophical works exerted an influence on psychology; agreed with Locke that all knowledge of the external world comes from experience, and argued that perception is the only reality; and depth perception is not a simple sensory experience but an association of ideas that must be learnt; for the first time explained a purely psychological process in terms of association of sensation; published *An Essay Towards a New Theory of Vision* (1709) and *A Treatise Concerning the Principles of Human Knowledge* (1710).

Bernstein, Basil (b. 1925): reader in the University of London; made a special study of the sociology of language and has distinguished two different speech systems—the elaborate code having the potential to express individual and abstract thought, and the restricted code with a low level of vocabulary and syntax; stressed the need for the extension of vocabulary and broadening of outlook in the formative years.

Bethune, John Eliot Drinkwater (1801-1851): educated at Trinity College, Cambridge; Law Member of the Supreme Council of the Government of India (1848); President of the Council of Education (1848 to 1851); played a prominent part in establishing the Bethune School for girls at Calcutta in 1849; bequeathed his entire property to the school; died at Calcutta.

Binet, Alfred (1857-1911): French experimental psychologist; did very useful work in the field of test construction; founded the first *Journal of Psychology* in 1895; with Dr. T. Simon as collaborator, he produced in 1905 the first intelligence test known as the first Binet-Simon Scale; produced a revised scale in 1908, published the third revision in 1911. The Binet-Simon Scale will always remain as a pioneer effort in the measurement of intelligence. Some of Binet's original tests, standardized by L.M. Terman, will be found in *Stanford-Binet Test*.

Bode, Boyd H. (1873-1953): eminent philosopher-educator at Ohio State University; in his famous book *Progressive Education at the Crossroads* (1938) he claimed that 'child centred' methods had become a cult setting up false 'absolutes'; contended that 'the purpose of sound education is to emancipate the pupil from dependence on immediate interest'; intervened among the conflicts on psychologies of learning and analyzed cognitive learning in more precisely psychological terms; gave a neat account of the higher learning known as 'concept formation'.

Bradley, George Granville (1821-1903): one of the great English school masters of the 19th century; greatly helped to reorganize secondary education; headmaster of Marlborough College which came to rank with the leading public schools; in 1881 was appointed the Dean of Westminster.

Brinsley, John (1585-1665): English educator and headmaster of Ashby-de-la-Zouch School in Leicestershire; author of *Ludus Literarius*, or *The Grammar School* (1612) which provides a vivid picture of the life of a grammar school of the period; opposed the strictness of the school masters of the time; stressed the importance of the teaching of English.

Brooks, Charles (1795-1872): professor of natural history in New York University, one of the founders of the American Association for the Advancement of Education; worked with Horace Mann in the revival of the school system in Massachusetts; became acquainted with Prussian system of normal schools, and agitated for the State support of a teacher-training programme using the popular slogan 'as is the teacher so is the school'; wrote *Peace, Labor, and Education in Europe* and several pamphlets on normal schools.

Brougham, Lord Henry (1778-1868): Lord Chancellor and educational reformer; one of the great advocates of educational improvement in England during 1816-35; in 1820 introduced a bill in the Parliament with the object of setting up elementary schools, securing efficient teachers and to establish religious instruction on a non-denominational basis, but the bill could not pass; in 1833 repeated his views in the House of Lords regarding compulsory education, State grants, infant schools, etc. and the government at last adopted the recommendation; published *Observations upon the Education of the People* which ran through 20 editions in one year.

Bruner, Jerome Seymour (b. 1915): American psychologist; professor at Harvard; has been

guest lecturer at many universities ; served with distinction in the American Psychological Association and in various advisory boards ; in 1962 was the recipient of an American Psychological Association Distinguished Scientific Contribution Award ; became interested in the nature of the processes underlying opinion formation and other social phenomena—perception, thought, learning, language—and, subsequently, in the study of development in children and the nature of the educational process.

Buddhakirti: see under 'Great Teachers of Ancient India'.

Burt, Cyril (b. 1883) : English educationist and psychologist who has made a noteworthy contribution in education in general and mental testing in particular ; translated Binet's tests and modified them to suit English children ; published pioneering works on delinquency and backwardness in children. His important publications include *The Factors of the Mind*, *Distribution and Relations of Educational Abilities and Mental and Scholastic Tests*.

Busby, Richard (1606-1695) : headmaster of Westminster School in England who was noted for his sense of the dignity of a headmaster and who refused to take off his hat in the

presence of King Charles II, on a visit to the school, as he felt that it was not fitting for a headmaster to do so in the presence of his pupils who should not be let to believe that there was a greater man in the world than the headmaster. He was a stern advocate of flogging. He taught Dryden, Locke and Wren.

Buss, Frances Mary (1827-1895) : leader in the movement for the higher education of girls and women in England ; in 1874 became the first president of the Head Mistresses' Association. Owing to her efforts Cambridge Local Examinations were thrown open to girls, and women were permitted to proceed to degrees in the University of London.

Butler, Nicholas Murray (1862-1947) : American educator ; studied at Berlin and Paris (1884-1885) ; established the 'Education Review' and was its first editor (1889-1920) ; first President of Teachers' College Columbia (1886-91) ; President of Columbia University (1901-45) ; greatly enhanced the prestige of the university ; a trustee of the Carnegie Foundation for the Advancement of Teaching ; Chairman of the Carnegie Corporation (1937-45) ; shared the Nobel Peace Prize with Jane Addams (1931).

C

Calvin, John (1509-1564) : an important figure in education in the sixteenth century ; a creative theologian, organized the Academy of Geneva which provided instruction in Greek, Hebrew, ethics, logic, rhetoric, oratory, poetry, physics and mathematics ; paid stricter attention to religious training ; influenced the organization of many universities like the University of Leyden in Holland, University of Edinburgh in Scotland, and Emmanuel College at Cambridge University.

Carey, Rev. Dr. William (1761-1834) : an English missionary who came to India in 1793 ; played some role in shaping Bentinck's policy on education ; worked as a professor of Marathi, Bengali and Sanskrit in the Fort William College, Calcutta ; did excellent work for the advancement of learning ; wrote many books in Marathi ; died at Serampore.

Carlyle, Thomas (1795-1881) : British author and educator ; served as a school-master for a number of years ; wrote much on educational

themes, and, thus, through his magnificent prose shed influence on educational ideals ; served the cause of education by persistently insisting upon the country's duty to provide education for all ; continued to plead for a better educational system, for an efficient teaching service, for a proper Education Bill so that everybody could be taught ; he wrote : 'How much crueller to find the strong soul, with its eyes still sealed, its eyes extinct so that it sees not ! Light has come into the world, but to this poor peasant it has come in vain... Heavier wrong is not done under the sun.' It was a great thing to awaken the conscience of England to its duty regarding the education of the people.

Carr, Harvey A. (1873-1954) : American psychologist ; succeeded Angell as chairman of the psychology department (1919-38) at Chicago ; under him functional psychology reached its zenith and he considered that other schools of psychology had little to add to the all-

encompassing functional psychology ; held that psychology is concerned with mental activity, like memory, perception, feeling, judgment and will, and the function of the mental activity is to acquire, retain, organize and evaluate experiences, which determine action ; recognized the validity of both introspective and objective observation as methods of studying mental activity ; declared that cultural products like language, literature, art and social institutions can offer clues of mental activities that produced them ; published *Psychology* (1925).

Carter, James Gordon (1795-1849) : one of the originators of the normal school movement in the United States ; always supported the idea of a State normal school ; petitioned the Massachusetts legislature for the establishment of such a school, but the bill subsequently presented could not pass ; himself opened a private normal school which awakened the interest of the people for the professional training of teachers ; was elected a member of the Massachusetts legislature in 1835 ; caused the passing of a bill which established the State Board of Education.

Cattel, James McKeen (1860-1914) : American psychologist who worked under Wundt for three years at Leipzig ; two years in England as assistant to Francis Galton ; gave tests to measure individual differences, devised the 'order of merit ranking method' ; made American psychology an integrated and well-organised discipline ; edited six journals ; supervised more than 300 successful candidates for the Ph. D. degree ; founded in 1921 the 'Psychological Corporation' as an institute for research.

Chandragomin : see under 'Great Teachers of Ancient India'.

Chitra Gangyani : see under 'Great Teachers of Ancient India'.

Claparede, Edouard (1873-1940) : physician, psychologist, educator and reformer ; in 1904 became the director of the first psychological laboratory ; in 1912 with the help of Pierre Bovet founded the famous Rousseau Institute, a teacher training institution ; felt that the development of general psychology must depend on child psychology and educational psychology as these provide contacts with children, and that the knowledge of child psychology is necessary if one wants to 'teach' children. His studies on child's perception, selective attention and their ability to distinguish differences before they can locate similarities are of great educative value. The Rousseau Institute is the symbol of his great achieve-

ment ; here he guided and inspired students and teachers, including Bovet, Piaget, Antipoff, and Rey.

Clarke, Fred (1880-1952) : Director of the Institute of Education of London University for a number of years ; first chairman of the English Advisory Council ; a pioneer in advocating the relevance of sociology to educational thought.

Colet, John (1465-1519) : one of the great educational pioneers and the foremost English humanist of his time, leader of English Reformation, founder of St. Paul's School, Dean of St. Paul's. He wrote, with Lily, the first headmaster of the school, a Latin grammar which revised by Erasmus was used for a number of years in English schools and became the 'Eton Latin Grammar'.

Comenius, John Amos (1592-1670) : philosopher, pioneer of modern educational science, and text book writer ; believed in the process of natural growth of the child—'Let our maxim be to follow the law of nature in all things, to observe how the faculties develop one after another, and to base our method on this principle of succession' ; regarding aims of education he observed, 'They will learn not for the school but for life so that the youth shall go forth energetic, ready for everything, apt, industrious, and worthy of being entrusted with any of the duties of life, and this all the more if they have added to virtue a sweet conversation and have crowned all with the fear and love of God' ; desired 'the subjects of instruction are to be decided each year, each month, each week, each day and even each hour may have a definite task appointed for it' ; propounded certain rules of teaching through which he wanted to impart instruction 'surely and thoroughly, certainly and clearly and easily and pleasantly'. His important works include *Great Didactics*, *Gate of Tongues Unlocked*, *The School of Infancy*, *The World in Pictures*.

Conant, James Bryant (b. 1893) : American chemist, diplomat and educator ; Ph.D from Harvard where he taught chemistry (1916-33) ; President of Harvard (1933-53) ; was instrumental in the creation of the National Science Foundation (1950) ; was appointed Ambassador to the Federal Republic of Germany ; did extensive investigations of U.S. high schools in the 1950's under a grant from the Carnegie Corporation ; his recommendations included expansion of guidance facilities, more stress on English Composition, the sciences and foreign languages, consolidation of school districts,

college level courses in high school for the most gifted and smaller classes; felt that the university cannot imitate past standards but must rely upon the experimental spirit and should stress upon a common foundation through general education, specialization, learning for its own sake and the development of aesthetic and civic talents; published *The American High School Today, Education and Liberty, On Understanding Science and Modern Science and Modern Man*; was awarded the Presidential Medal of Freedom with special distinction (1963)

Condillac, Etienne Bonnot De (1715-1780): French philosopher, was appointed tutor to the Duke of Parma; wrote several essays for the study of his pupil, gave importance to the training of reasoning over purely memory work, and preferred observation and experiment to mere verbal instruction. He wrote: 'True knowledge is in the reflection, which has acquired it, much more than in the memory, which holds it in keeping; and the thing which we are capable of recovering are better known than those of which we have a recollection'.

Condorcet, Marquis de (1743-1794): mathematician and philosopher; as member of the National Assembly, France, drew up a project for a new system of education; held that education was necessary in a democracy for liberty, and equality, for morality and human progress; education should be universal and free at all stages and State should bear the cost; the girls should study with the boys the same subjects in the same classes. He was inspired throughout his life by his belief, in the indefinite perfectibility of man.

Confucius (551 B.C.-478 B.C.): a lover of morals and born teacher, his system of education has been memoriter and his hope was to develop a people who would live righteously and obey implicitly the laws of the land. He edited *Books of Poetry, History, Changes and Rites* and wrote the *Spring and Autumn* which were studied for twenty-three centuries by all Chinese boys in their homes or in schools.

Coombs, Philip H. (b. 1915): American economist and educator. Director of International Institute for Educational Planning, UNESCO, Paris since 1963. Earlier he was Economic Adviser, Office of Strategic Services (1942-45); Economic Adviser to the Director, Office of Economic Stabilization (1945-46); Professor of Economics, Amherst College (1947-49); Secretary and Director of Research, Fund for Advancement of Education, Ford Foundation (1952-61); Assistant Secretary of State for

Educational and Cultural Affairs Departments of State (1961-62): was one of the consultant to the Indian Education Commission (1964-66). His publications include: *The Fourth Dimension of Foreign Policy* (1964), *Education and Foreign Aid* (1965), and *The World Educational Crisis—A System's Analysis* (1968).

Cordier, Maturin (1479-1564): a French Protestant, one of the most devoted school masters of his time; at one time was a teacher of Calvin, and later his follower; resigned the chair of rhetoric in the College de la Marche to teach grammar in a school for finding out a good method for the teaching of Latin and subsequently produced *A book for the purification of corrupt speech*; again resigned a professorship at the College de la Rive in Geneva to teach the lower forms, which in his mind deserved greater attention. His famous work is the *Colloquia, or Dialogues* (1564) which at once became a textbook and was used in schools for three centuries after his death.

Counts, George S. (b. 1884): American educator and author of numerous books on education; believes that school is a place for the strengthening of principles of equality. His works include: *The Education of Free Men in American Democracy* (1939), *The School can Teach Democracy* (1941), *Education and the Promise of America* (1945), *Education and American Civilization* (1952).

Cousin, Victor (1792-1867): French philosopher and educator; professor at the Sorbonne; he constantly persuaded his countrymen to reform the French system of public education. His *Report on the State of Public Instruction* pleaded for compulsory education for all children, and exerted considerable influence in America and France. He also helped the reorganization of university education.

Cunningham, W. I. (1885-1961): American educator, represented the viewpoint of the neo-scholastic philosophy; taught at Portland University and at Notre Dame; believed that education involved a four-fold development—man's growth in the home, growth in the community, his mental training and his religious development by the Church; emphasized man's supernatural destiny and the strengthening of his faith in God; viewed knowledge as a divine instrument which leads to the advancement of the spiritual kingdom; maintained that the knowledge of God is the beginning and end of education; published *Pivotal Problems of Education and General Education and the Liberal College*.

D

Danasila, Acharya (12th century A.D.): a great scholar of Jagaddala University, who hailed from Kashmere. He had an equal mastery both in Sanskrit and Tibetan and he translated no less than 54 works into Tibetan. His influence on Tibetan Buddhism has been considered as great as that of Dipamkara Atisa and Abhayakaragupta.

Darwin, Charles (1809-1882): founder of the famous Darwinian theory of the evolutionary doctrine; published *The Origin of Species by Natural Selection* in 1859, the year which became an important date in the history of psychology; published the *Descent of Man* (1871) in which he argued that man was descended from an ape-like ancestor; wrote *The Expression of the Emotions in Man and Animals* (1872). The theory of Darwin greatly influenced psychology and education.

Dayananda, Swami (1824-1883): Indian educator and social and religious reformer, born in the native State of Morvi in Kathiawar (Gujarat); his Sanskrit education began at the age of 5; had an extraordinary memory; found a real Guru in Swami Virjananda; dedicated his life to disseminate the real teachings of the Vedas; by establishing the Arya Samaj on April 10, 1875 in Bombay, he gave a definite shape to this movement; educational ideals propounded by him are dependent on his Vedic philosophy; process of education as advocated by him is given in his book *Satyarth Prakash* (Light of Truth)—mother as the first educator; education in 'Gurukulas'; stress on correct pronunciation; control of the senses essential for character building; children to be safeguarded against all superstitions; no co-education, no mixing with the members of the opposite sex during student days; importance of bodily and mental discipline; simple living and high thinking; observance of 'Brahmacharya'; equal right of women for education. Swamiji felt that the education of the child starts even before birth. It behoves both parents before, during, and after conception to avoid the use of such foods and drinks as are intoxicating, decomposed, non-nutritious and prejudicial to the growth of intellect; and to use those articles that are productive of mental tranquility, health, strength, intellect, energy and good temper—qualities that go to make a man refined. Swamiji was of the view that the education of the child up to the age of five should be in the hands of the mother who should try

to cultivate a sweet subdued and pretty voice in her child. Swamiji's scheme of studies for about 20 years included; 1. Phonetics 2. Grammar 3. Nighantu and Nirukta (Books on Vedic Vocabulary and Philology) 4. Chandograntha (Prosody) 5. Manu Smriti, Valmiki Ramayana, etc. 6. Six Sastras. 7. Four Vedas with their four Brahmanas 8. Upvedas. He regarded Pratyaksha (direct cognizance); Anumana (inference); Upamana (analogy); Shabda (testimony, literally word); Itihas (history); Arthapatti (conclusion or deduction); Sambhava (possibility); Abhava (absence or negation) as the eight types of evidence to arrive at Truth. A network of Dayananda Anglo-Vedic educational institutions stand, as a great tribute to his educational thought and wisdom.

Day, Thomas (1748-89): a true disciple of Rousseau, ardent adherent of the doctrine for simplicity and the return to nature. He adopted two little girls and attempted, in accordance with the doctrine of Rousseau, to rear them and to turn either of the two into a fit bride for himself. However, the experiment was a failure. His book '*Sandford and Merton*' remained a favourite with English boys for more than a century.

Decroly, Ovide (1871-1932): by profession a doctor, his interest in education grew when he worked in a school for abnormal children; provided a homely environment for defectives and obtained better results; opened a school for normal children known as the Hermitage in 1907 and used classroom as a workshop in which each child was free to follow his own interests; felt that the child's four needs, for food, shelter, defence and work, must be carefully analysed and met.

Defoe (1659-1731): English journalist and novelist; advocated in his '*Essay Upon Projects*' (1697), the establishing of academies. His book which affected Benjamin Franklin led to the founding of the Academy and Charity School of Philadelphia. His '*Robinson Crusoe*' has been acclaimed, as one of the greatest books in children's literature. Rousseau was greatly influenced by this book.

De Garino, Charles (1849-1934): American educator who turned to Herbert for his inspiration; Professor of the Science and Art of Education at Cornell University; author of '*Principles of Secondary Education*' published in two volumes in 1907 and 1908.

De la Salle, St. Jean Baptiste (1651-1719) : founded the Institute of the Brothers of the Christian Schools in 1682 at Rheims, France, for the Christian education of youth, the cultivation of letters and the diffusion of knowledge. He carried out several educational reforms ; organized elementary, secondary and technical schools, colleges and academies ; and gave elaborate directions in his *Conduct of Schools* (1721) regarding the method of teaching and the management of schools. He advised the teachers to have an accurate knowledge of psychology, to make the pupils take initiative, to question the pupils to hold their attention, to use progressive and practical method of teaching, to interest the parents in the progress of their children and to keep ready a daily schedule of lesson to be followed each day.

Descartes, Rene (1596-1650) : famous French philosopher, mathematician and author ; often been called the father of modern philosophy as well as the father of physiological psychology and reflexology ; his mechanistic conception of the body, his mind-body theory of interactionism and the doctrine of innate ideas helped to develop many trends in later psychology. The first part of the *Discourse in Method* deals with pedagogy, and his educational ideas had a marked influence on schools and institutions of higher learning during the latter part of the 17th century. He announced the native equality of all minds—'Good sense is of all things among men, the most equally distributed' and 'The power of judging aright and of distinguishing truth, from error, is by nature equal in all men'—but the inequalities actually found are the result of different culture and education ; believed that education is possible for every individual and it should be considered as a right and not a privilege ; contended that each has a right to think for himself, and clear thinking comes by handling facts at first hand ; stated that the mind proceeds from the known to the unknown, from the easy to the difficult, from the simple to the complex.

Devanabhatta (13th Century A.D.) : a great scholar and author of the *Smṛiti-Chandrika*, a commentary on the system of education. *Smṛiti-Chandrika* lists practices forbidden for students ; describes the duties of the life-long student (naishtika-brahmachāri) who is distinguished from the student who passes on to the state of house-holder after the period of training ; explains that teaching by stipulated payment of fee is forbidden ; states that beating a pupil should be resorted to only for correction. The teacher, according to *Smṛiti-*

Chandrika failing to instruct his pupil incurs blame.

Dewey, John (1859-1952) : one of the world's greatest philosophers and educators ; established the University Elementary School at Chicago and carried out his experiments therein ; worked for nearly three decades as the professor of philosophy in Columbia University, New York city ; education according to him is 'the process of the reconstruction or reconstitution of experience, giving it a more socialized value through the medium of increased individual efficiency' ; again he says, 'The process of education is a continuous process of adjustment, having as its aim at every stage an added capacity of growth ; regards child as the core of the whole educational process ; does not conceive of an individual apart from the society ; regards school as 'a miniature society', as an institution essential to social life where simplified, purified and balanced activities of the society find their place ; regards curriculum as activities and experiences ; holds that discipline should develop social attitudes, social interests, social habits and social will ; associated with terms like Project Method, Problem Method and Activity Programme. His chief works are : *Interest and Effort as Related to Will* (1896), *The School and Society* (1899), *The Child and the Curriculum* (1902), *How We Think* (1910), *Interest and Effort in Education* (1913), *Schools of Tomorrow* (with Evelyn Dewey) (1915), *Democracy and Education* (1916) ; *Reconstruction in Philosophy* (1920), *Human Nature and Conduct : An Introduction to Social Psychology* (1922), *Sources of a Science of Education* (1929).

Dhananjaya (12th Century A.D.) : a famous lexieographer and author of *Nāmamālā* ; a Digambar Jain and a native of Karnatak ; wrote *Dvīsandhanakavya*, an epic in which the stories of the two epics are simultaneously narrated—when read from left to right (in the usual way) describes the story of Rāma but while read from right to left, it gives the story of the Pāṇavas.

Dharmapala : see under 'Great Teachers of Ancient India'.

Dharma Ratna : see under 'Great Teachers of Ancient India'.

Diderot, Denis (1713-1784) : French philosopher and educator, editor and principal, author of the monumental work *Dictionnaire Encyclopédique* (1750-72) in 28 volumes ; contributed to the science of pedagogy through his two treatises—*The Systematic Refutation of the*

Book of Helvetius on Man (1773) and *Plan of a University* (1776), the latter written at the request of Catherine II of Russia. He believed : education should be compulsory for all and should be directed by the State ; the curriculum of secondary education should be revised and should include natural history, chemistry, physics, anatomy, geography and experiments ; the subjects taught should have utility for the students ; universities should have several series of parallel courses, scientific and literary, religious, historical, etc. ; the teaching of history should begin with the recent events and then should work backward to ancient times. He was one of the first to say that the blind could be taught through the sense of the touch.

Donatus, Aelius (4th Century A.D.) : Roman grammarian, rhetorician, author and teacher of renown ; taught in a famous school in Alexandria ; his school was extensively copied all over the Western world and his work represented a typical sample of good Christian education of the period. He had a thorough understanding of human nature ; had immense patience, sincerity and prodigious learning ; helped and inspired his pupils and moulded their character. His *Ars Grammatica* was the basis of almost all the treatises on the subject written during the Middle Ages, and his *On the Eight Parts of Speech* had a very wide circulation.

Drever, James (1873-1950) : British psychologist, first to hold the chair of Psychology at Edinburgh University. Early working years were spent as a teacher and later as a lecturer in Edinburgh University. He gave much thought to the problem of how best to teach psychology. He was the president at the 12th International Congress of Psychology (1948). His publications include : *The Psychology of*

Everyday Life, The Psychology of Practical Life (with Dr. Collins) and *A Dictionary of Psychology*. His son James Drever (junior) (b. 1960) succeeded him after his retirement in 1944, as Professor of Psychology in the University of Edinburgh and held the position for 20 years. James Drever (Junior) has been the Vice-Chancellor of the University of Dundee since 1967.

Duff, Rev. Dr. Alexander (1806-1878) : one of the greatest English missionaries who believed that the imparting of Western education along with the teaching of Christian doctrines was the only effective means of bringing about conversion of the people of India on a large scale ; Duff had a great share in shaping educational policy of Bentinck, founded the Duff College ; was largely responsible for the foundation of Calcutta Medical College ; edited the Calcutta Review ; greatly assisted in the establishment of the Calcutta University ; came to India thrice : 1830-35, 1840-1850 and 1856-63.

Duncan, Jonathan (1756-1811) : joined the service of the East India Company in 1772 ; resident at Banaras in 1788 ; established Banaras Sanskrit College in 1791 ; governor of Bombay for 16 years till his death in 1811 ; abolished infanticide in Banaras and Kathiawar.

Dury, John (1596-1680) : Protestant divine ; close associate of Hartlib and Comenius ; believed that the new schools should train pupils to be godly, healthy and well-mannered ; stressed the need to learn 'things and words' together ; urged that learning should be made enjoyable so that nothing should be 'tedious and grievous to the children'. His most important work is the *Reformed School*, a reaction of an educated man to the educational ideas of his time.

E

Ebbinghaus, Hermann (1850-1909) : one of the pioneers in the study of experimental psychology ; established the first important psychological journal in Germany (1890) ; professor at Breslau (1894) and at Halle (1905). His most important contribution was the application of quantitative measurement to mental phenomena, especially memory. His most important publications include *Über das Gedächtnis*,

Grundzüge der Psychologie, Abriss der Psychologie.

Eliot, Charles William (1834-1926) : American educator, prolific writer, leader of college and university reform ; President of Harvard University for 40 years ; identified with the movement to replace the rigid college curriculum by one based on elective principle ; contended that the spirit of the college must be 'broaden-

ed, deepened and invigorated'; stressed that variety of intellectual product, and not uniformity, was expected from colleges; helped in the reorganization of the pattern of American education and drew national attention to the waste of time in the system owing to the late beginning of secondary education and late completion of college education; published *Educational Reform* (1898) and *University Administrators* (1908).

Ellis, Elmer (b. 1901): American teacher, scholar and administrator; taught algebra, grammar, history and science in a school during 1921-22; became the President of the University of Missouri in 1955; believes that the State Universities of America represent the 'highest expression of democratic educational philosophy'; supervised the training of potential social studies teachers enrolled in the School of Education of the University of Missouri; active member of the National Council for the Social Studies and its President in 1937; Chairman of the American Council on Education from 1957 to 1959.

Elphinstone, Mount Stuart (1779-1859): served East India Company for a number of years; Governor of Bombay (1819-1827); was a staunch advocate of English education; established the Poona Sanskrit College; was the first President of the Bombay Native Education Society which recommended the starting of English schools; ordered an enquiry into indigenous education in Bombay in 1823. Elphinstone Institute was organised in Bombay in 1834 to commemorate his service to the province.

Elphinstone, John (1807-1860): Governor of Madras (1837-42) and of Bombay (1853-60); was largely responsible for the foundation of the Madras Presidency College.

Elyot, Sir Thomas (1499-1546): one of the outstanding educational writers of England during the Renaissance period; one of the pioneers of the movement for the study of Greek; first to write on 'physic' in English in his book *Castell of Helth* and later reminded his critics that Greeks wrote in Greek and Romans in Latin, i.e., each in their mother tongue; first English writer to emphasize the importance of physical education; realized within 50 years

of Columbus' great discovery that educational subjects should include geometry, astronomy and cosmography. In his famous book the *Governour*, he lays down the scheme of education and training of the ruler of the State, and underlines that it will be the first duty of a teacher to know the nature of his pupil; 'Lord, God', he laments, 'how many good and clean wits of children be nowadays perished by ignorant school masters!'

Emerson, Ralph Waldo (1803-1882): American moralist, lecturer, essayist and poet; was a teacher for four years in city and country schools, a lecturer in various lyceums, a member of the school committee and one of the Board of the Overseers of Harvard College; urged that the scope of education should be as broad as man and that its object should be a moral one, to teach self-trust; he held that scholarship should be created, not by compulsion, but by awakening a pure interest in knowledge; appealed to individuality and idealism; he protested against cast-iron curriculum and insisted that colleges should aim not to drill, but to create; lamented that 'we are students of words; we are shut up in schools, and colleges, and recitation rooms, for ten or fifteen years, and come out at least with a bag of wind, a memory of words, and do not know a thing'. His ideas on education will be found in his address on *New England Reformers* and essays on *Culture and Education*.

Erasmus, Desiderius (1466-1536): French educator, and one of the greatest humanists of the Renaissance; typifies the process of the transfer of the New Learning to Northern and North Western Europe; believed that the ultimate end of education was to produce devout and instructed leaders in church and State; established a higher standard of qualification and repute in the profession of schoolmaster; pointed out the importance of the proper selection of teachers and recommended that parents should take a personal interest in the education of their children; suggested methods of teaching and pleaded that love and sympathy, not fear and harshness, should be the stimuli employed; urged for the study of Greek and Latin which contain 'the whole of attainable knowledge'.

F

Fechner, Gustav Theodor (1801-1887) : German physiologist, physicist, philosopher, psychophysicist and founder of quantitative experimental psychology ; professor in the University of Leipzig ; found the connection between mind and body in a statement of quantitative relation between mental sensation and material stimulus ; his psychophysical research with lifted weights, visual brightness and tactual and visual distances, developed one and systematized two of the three fundamental methods of psychophysics—the method of average error, the method of constant stimuli, and the methods of limits. His research led the way to experimental quantitative psychology, without which the scientific study of educational problem would not have been possible.

Fichte, Johann Gottlieb (1762-1814) : German philosopher ; was rector of the University of Berlin ; believed that man's life is a constant striving to realize the ideal ; urged a complete reorganization of the German school system on the doctrine of Pestalozzi. His main suggestions regarding education are : education is the function of the State ; the whole people of a nation should be educated ; there should be co-education and both the sexes should have the same education ; the children should be separated from their parents during the period of their training ; children should learn to work with their hand, but not during their studies as was suggested by Pestalozzi ; training of those occupations which the majority would take up in future should be given ; physical training should form an important part of the regular school work ; mental training should aim to awaken in the child the love of knowledge and the love of his fellow men ; the goal of education is to develop a pure morality and a spirit of true religion. His ideas on education will be found in *The Vocation of the Scholar*, *The Nature of the Scholar* and *The Address to the German Nation*.

Fischer, John H. (b. 1910) : Former Superintendent of Public Instruction in Baltimore who became President of Teachers College, Columbia University is a perceptive and authoritarian observer of American education. As superintendent he had shown outstanding leadership in the development of an improved educational programme in Baltimore ; and as president, in his first convocation address (1960), he suggested that the principal responsibility of American teachers was to help the public to a better

understanding of education's larger purposes. Among his recommendations for improving the schools are : stress on the academic aspects of the curriculum ; cultivation of teacher competence particularly for teaching the less academically gifted ; promotion of that kind of education which would help to develop 'long-lived values' ; solving the problems of racial-desegregation through pupil-teacher relationship and open enrolments. He takes a firm stand on the side of individuality, as he says, 'The focus of sound teaching is always on the individual, for education is an intensely personal matter'.

Fisher, Herbert A.L. (1865-1940) : English historian ; was actively engaged in public and educational service ; as Minister of Education in World War I Cabinet, was associated with the important Education Act passed by the British Parliament in August, 1917, which laid the foundation on which the progress of education in England was built after 1918.

Flexner, Abraham (1866-1959) : American educational administrator, worked for about 19 years as a secondary school teacher and principal ; taught at Harvard and University of Berlin ; joined the research staff of the Carnegie Foundation for the Advancement of Teaching ; his reports : *Medical Inspection in the U.S.A. and Canada* (1910) and *Medical Education in Europe* helped in bringing about reforms in teaching ; his pamphlet *A Modern School* (1916) was responsible for founding the Lincoln Experimental School of Teachers' College, Columbia University ; greatly influenced the educational policies of the various trusts, the Rockefeller ; the Carnegie, etc.

Forster, William Edward (1818-1886) : English educational statesman, as Vice-President of the Committee of the Privy Council for Education, he was responsible for the passage of Education Act 1870 in England, which was a first step in making education compulsory.

Francis, Galton (1822-1911) : English scientific investigator ; began as a geographer and explorer, turned towards anthropology, study of heredity, eugenics and psychometrics, published *Heredity Genius* (1869), the results of his research demonstrating the inheritance of genius, and stated : "I propose to show in this book that man's natural abilities are derived from inheritance, under exactly the same limitations as are the form and physical features of the whole organic world" ; investi-

gated into the nature of mental powers, and devised the method of 'questionnaire' and published his classic researches on mental imagery in *Inquiries into Human Faculty* (1883); laid the foundation of psychometrics; established an 'Anthropometric Laboratory' in 1884 at the International Exhibition in London and this has been described as the birth place of mental testing movement. His greatest contribution to education consists in the introduction of statistical methods for mental measurements and practical application of his studies in heredity to education.

Franeke, August Hermann (1633-1727) : one of the most influential German educators and philanthropists, the chief educational representative of Pietism; founded several elementary schools, secondary schools, normal schools, an orphanage, and refuge for beggars. These institutions had the greatest influence on the education of the country. He emphasized the important role played by the teachers in influencing their pupils and the need for a high moral standard among them; demanded that attention should be paid to individual differences; recommended the method of teaching through experiments, observations and models; and advised for a close relationship between the school and the home.

Franklin, Benjamin (1706-1790) : the American author, publisher, scientist, inventor and statesman who influenced the educational theory and practice of his country in several ways; brought practical improvements in the art of printing; founded the first American circulating library (1731), the academy that later developed into the University of Pennsylvania (1743), and the American Philosophical Society (1769); provided for a wide curriculum including practical and vocational activities in his academy and wrote, "...it is therefore proposed that they learn those things that are likely to be most useful and most ornamental; regard being had to the several professions for which they are intended"; Franklin's incomplete *Autobiography* and *Poor Richard's Almanac* had great educational influence. His writing concerning education include: *Proposals relating to the Education of Youth in Pennsylvania* (1749), *An Idea of the English School* (1750), *A Scheme for a New Alphabet and a Reformed Mode of Spelling* (1768), *Observations Relative to the Intentions of the Original Founders of the Academy in Philadelphia* (1789).

Freud, Sigmund (1856-1939) : originator of the

science of psychoanalysis; was professor of neurology in Vienna University (1902-38), Austria which he left to find a welcome home in England as a political refugee in 1938; did pioneer work by his researches into the subconscious processes of the mind; wrote many books on the subject; believed that emotion was more important than reason in governing human behaviour and many of the basic emotions originate in early childhood and later operate at a level about which one is unconscious; had a number of important followers including Alfred Adler and C.G. Jung who disagreed with some of his theories. His ideas had a great effect on some schools, especially dealing with infants and nursery children, and his psychoanalysis has been a help to discover some of the emotional roots to learning or behaviour difficulties in older children.

Froebel, Friedrich (1782-1852) : the founder of the Kindergarten system of education; his contact with Pestolozzi prepared him for his own educational reforms; devoted his life in founding kindergartens, the training of teachers for kindergartens and elaborating his methods and principles, and devising apparatus for kindergartens; believed in an internal law which governs all things: 'Man, particularly in boyhood, should become intimate with nature—not so much with reference to the details and the outer forms of her phenomena as with reference to the spirit of God that lives in her rules over us', regards the childhood as the period of play, he wrote, 'the play is the highest phase of child development...it is the purest, most spiritual activity of man at this stage...It gives, therefore, joy, freedom, contentment, inner and outer rest, peace with the world. It holds the source of all that is good'; introduced terms like 'Gifts' and 'occupations'; published (1) *The Education of Man* (2) *Reminiscences* (3) *Pedagogies of the Kindergarten* (4) *Auto-biography* (5) *Education by Development*.
Fromm, Erich (b. 1900) : German psychologist taught in a number of universities in the United States and Mexico; considers that the evolution of society towards complexity and impersonality has left man lonely, isolated from his fellow men, but its effective solution lies in humanism which unites man with his fellow men in the spirit of love and co-operation; remains optimistic about the ability of man in shaping a society that will permit him to develop into a fully human being.

G

Gandhi, M. K. (1869-1948): an apostle of truth and non-violence; liberator of India from foreign rule; one of the outstanding educational philosophers of the world. He believed: 'True education does not consist in literary training, but in character-building. My reading of Emerson, Ruskin, Mazzini and the Upanishadas confirm such a belief.' 'Education ought to be.... a kind of insurance against unemployment'; 'By education I mean an all-round drawing out of the best in child and man—body, mind and spirit'; 'True education is that which draws out and stimulates the spiritual, intellectual and physical faculties of the children'. He was the founder of the Wardha Scheme or Basic Education based on (1) Free Compulsory Education between ages 7 and 14; (2) Craft as the Centre of Education; (3) Self-supporting aspect; (4) Mother-tongue to be the medium of instruction; (5) the Non-violence cult; (6) Ideal of Citizenship and (7) the idea of a Cooperative Community. Gandhiji made naturalism and pragmatism as complementary to his idealism. He popularized his ideas in 'Harijan'. His works on education include *Towards New Education*, *Basic Education*, *True Education*, *To the Students*, *The Task Before Indian Students*, *India of My Dreams* and *Medium of Instruction*.

Gangesa (12th century A.D.): a great scholar of Mithila University who founded the School of New Logie (Navya Nyaya) and produced the famous work '*Tattva Chintamani*', a document of 300 pages. Its commentaries covering three centuries make up more than 10 laes of pages. Gangesa was followed by his son, Vardhumana, and by Pakshadhara Misra who were also great masters of Logie and further developed the famous School of Nyaya.

Gawan, Mahmud (15th century): a minister in the Bahmani kingdom; a very learned scholar, writer and mathematician; famous for his literary munificence, as it was said that there was hardly a learned man in any town or city who was not benefited by his beneficence; founded the famous college at Bidar equipped with a library of 3000 volumes. His educational work stand out as a brilliant example of what an individual could do to further the cause of education without any aid from the State.

Gargi, Vachaknavi: see under 'Great Teachers of Ancient India'.

Gesell, Arnold Lucius (1880-1961): American psychologist; established the clinic of child

development at Yale that became a research centre for over thirty years; believed that maturation is the necessary condition of developmental change, and although the environment may on occasion direct the particular shape of development, its contribution in the development is relatively slight. He contributed a great body of knowledge to the developmental psychology and considered maturation as the central concept, for he held that the child will grow as his germ plasm directs. He wrote in *Infancy and Human Growth* (1928) 'As it is, the inborn tendency toward optimum development is so inveterate that he (the child) benefits liberally from what is good in our practice, and suffers less than he logically should from our enlightenment.'

Gokhale, Gopal Krishan (1866-1915): a champion in the field of compulsory primary education in India; professor and principal of Poona Fergusson College for a number of years; President of Indian National Congress (1905), founded the Servants of India Society; Member of Imperial Legislature; moved the following resolution in the Imperial Legislative Council on 19th March 1910: 'That this Council recommends that a beginning should be made in the direction of making elementary education free and compulsory throughout the country and that a mixed commission of officials and non-officials be appointed at an early date to frame definite proposals.'; withdrew the bill on an assurance from the Government; again moved the bill in 1912 but the bill was rejected; on this occasion his memorable words were: 'My Lord, I know that my Bill will be thrown out before the day closes, I make no complaint..... Moreover, I have always felt and have often said that we of the present generation in India, can only hope to serve our country by our failures. The men and women who will be privileged to serve her by their successes will come later..... The Bill, thrown out, today will come back again and again, till on the stepping stones of its dead selves, a measure ultimately will rise which will spread the light of knowledge throughout the land.'

Gordon W., Allport (b. 1897): professor of psychology at Harvard University who has earned international recognition for his research, particularly in the field of human personality and complexities of social interaction. He was the editor of the *Journal of Abnormal and Social Psychology* (1937-1945). His *Personality*:

A Psychological Interpretation (1937), is a standard work in its field. *The Individual and His Religion* (1950), views religious people through the eyes of the psychologist. He sees man as human regardless of his circumstances and beliefs. His other publications include *The Psychology of Rumour* (1947), *The Nature of Personality* (1950) and *Personality and Social Encounter* (1960).

Gotama Rahugana : see under 'Great Teachers of Ancient India'.

Gould, Sir Ronald (b. 1904) : President of the World Confederation of Organizations of the Teaching Profession ; General Secretary of the National Union of Teachers in England and Wales for a number of years ; associated with various organizations in the field of British education, including the Schools Council for the Curriculum and Examinations and the National Foundation for Educational Research.

Grant, Charles (1746-1823) : came to India in 1767 ; a staunch advocate of English education in India, believed that English language was a key to open the gates of new ideas for the people of India ; became Director of the East India Company in 1797 and Chairman of its Board of Directors in 1805 ; observed 'the true cure of darkness is the introduction of light. The Hindus err because they are ignorant'..... and 'it is perfectly in the power of this country, by degrees, to impart the Hindus our language'; believed that the acquisition of knowledge in English literature, philosophy and religion 'would silently, undermine the fabric of error'.

Groos, Carl : German psychologist : whose experimental investigations led him to think : 'Play in youth can be regarded as practice for future life tasks which is carried on by the growing individual for the sake of

pleasure without any idea of the ends which are realized by that activity'. His 'anticipatory theory of play' is a solid contribution to the science of education.

Grundtvig, Nikolai Frederik Severin (1783-1872) : Danish historian, poet, statesman, educationist, and founder of the Folk High Schools. He attacked the traditional Latin schools as 'schools for death', and pleaded for a new type of people's high schools as 'schools for life'. The aim of this new education for young people of Denmark, he felt, should not be that of preparing for an examination, but first and foremost should be to arouse the young people's interest in the community in which they were living, and to develop their ability to appraise problem affecting society as a whole. He revived nationalism in the country, and inspired the establishment of institutions where peasants and artisans could receive education in the mother tongue, national history, mythology, folklore and national songs. The first school under his influence was opened in 1848. The 'Folk High School' is Denmark's most important contribution to adult education; and such schools are found, in varying forms, in many European countries.

Gunavarman : see under 'Great Teachers of Ancient India'.

Guthrie, Edwin Ray (1886-1959) : American psychologist, ardent behaviourist ; worked in the University of Washington ; formulated an extremely simple learning theory based on only one principle—contiguity ; rejected Thorndike's laws of effect and Pavlov's reinforcement and instead depended on simultaneous conditioning ; received Gold Medal Award in 1958 from the American Psychological Foundation for his learning theory.

H

Hall, G. Stanley (1846-1924) : American psychologist ; studied with Wundt at Leipzig ; founded American Journal of Psychology (1887), founded the American Psychological Association ; propounded his fundamental theory that mental and physical life are always parallel and have evolved together ; proposed the 'recapitulation theory' that a child's development from birth repeats the pattern of human historical development ; published *Adolescence : Its Psychology* (1904) ; invited Freud and Jung to

America in 1909 and arranged a great conference of American psychologists to hear them expound their theories ; stimulated the psychological study of children and the problems of training and teaching.

Hansen, Carl F. (b. 1906) : American educator and educational administrator ; started his career as a high school teacher of English and Latin in 1925 ; played a major role in the desegregation of Washington's schools ; established a "four-track" system to cope with the

problems of integrated schools in city's high schools in 1955: (1) Honours—for top students only, (2) Regular—a basic college preparatory programme, (3) General—a combination of academic and vocational courses, and (4) Basic—a course for retarded students; started a 'talent search' programme for gifted children; undertook extensive research in educational television; established Amidon Elementary Schools in 1960 which embodies many of his educational ideas.

Harbison, Frederick (b. 1912): one of the world's leading authorities on human resource development. He is professor of economics at Princeton University and a member of the International Institute of Educational Planning's Council of Consultant Fellows. He possesses an exceptionally wide experience in human resource development in emergent countries and has assisted in manpower and education surveys in several African and South American countries. He has served as a consultant to UNESCO, ILO, OECD, AID, the World Bank and the Pan-American Union. He is Chairman of the Committee on Educational Planning and Human Resource Development of Education and World Affairs in New York. His publications include *Education, Manpower and Economic Growth* (with C. A. Myers) (1964); *Manpower and Education: Country Studies in Economic Development* (1965).

Hare, David (1775-1842): arrived in Calcutta in 1800; prime mover for the establishment of the Hindu College and Calcutta Medical College; patron of 'vernacular' education; founded the Calcutta School Society; established the Arpooly Pathashala (Hare School).

Harris, William Torrey (1835-1908): American metaphysician, educator and prolific writer; served as the Superintendent of Schools at St. Louis in the 1870's and Commissioner of Education (1889-1906); his work mostly concerned the kindergarten, the elementary school curriculum and the training of teachers; was the Chairman of a Sub-committee of the Committees of Fifteen upon the correlation of studies, and the Chairman of a Sub-committee of the Committee of Twelve on the problems of instruction in the rural schools. His was the burning zeal to accomplish three great aims in education—to psychologize education, to focus attention on the sociological functions of the schools; and to place education on a solid and enduring foundation. He believed that education was the only reliable agency to work out the destiny of man in harmony with the Divine Will.

Hartley, David (1705-1757): physician and philosopher; he is acknowledged as the founder of associationism as a formal doctrine. His fundamental law of association is contiguity which helps to explain memory, reasoning, emotion and action. He advocated greater attention in education to sacred learning, morality and religion; contended that educational development depended on the influence of the environment and training: 'It is evident that children may be formed and moulded as we please.' And, therefore, 'If two beings whose affections and passions are at present in different proportions be exposed for an indefinite time to the same impressions and associations, they will at last become perfectly similar and even equals.'

Hartlib, Samuel (1600-1670): best known educationist of his time in England; persuaded Milton to write his *Tractate of Education*; himself published *A Reformation of Schooles* (1642); *An Essay for Advancement of Husbandry Learning* (1651); *A True and Readie Way to Learn the Latine Tongue* (1654); assisted in collecting and interpreting a mine of educational ideas.

Hegel, Georg Wilhelm Friedrich (1770-1831): German philosopher; university teacher (1801-06), secondary school teacher and headmaster (1808-16); appointed professor of philosophy at Berlin (1818) and rector of the University (1830); based his philosophy of absolute idealism on the idea of an active world soul and included such concepts as thesis, antithesis and synthesis in all social processes. His views on education appear in his philosophical writings, especially in *Philosophy of Right*; he believed that education was the joint concern of the family and the community for providing a liberal education which would free the mind from the bond of nature and allow it to identify with the universal and attain the higher level of spiritual life; urged the necessity of firm discipline and a moral atmosphere in the school; stressed the need for teaching classical histories and literatures so that the pupil could be taken right out of himself and his surroundings, and made to share the thoughts, feelings and actions of the ancients.

Hegius, Alexander (1433-1498): humanist school master, one of the greatest educators of Transalpine Europe; taught at Wessel and Emmerich before he became the headmaster of the famous school at Deventer in 1465, which greatly flourished with an enrolment of two thousand pupils; believed that, 'All learning is pernicious if acquired at the expense of

piety'; and insisted on the value of a study of Greek 'for to the Greeks we are indebted for everything'. Erasmus was one of his pupils.

Helmholtz, Hermann Von (1821-1894): taught physiology at Bonn and Heidelberg and physics at Berlin; together with Fechner and Wundt, became a founder of the new psychology; made contribution to sensory psychology by his investigations of the speed of neural impulse, audition, and vision and thus helped to encourage the newly developing experimental approach to the study of psychology.

Hemachandra (12th century A.D.): author of four lexical works: *Abhidhanachintamani*, *Anekarthasamgraha*, *Nighantusesha* and *Desināmāmūtū*; the first two deal respectively with synonyms and homonyms, the third is a botanical *nighantu* and the last is a Prakrit lexicon.

Herbart, Johann Friedrich (1776-1841): German educator and philosopher; came into contact with great men like Goethe, Schiller and Fichte, met Pestalozzi when he was still teaching at an elementary school; occupied the most distinguished chair of philosophy in the University of Königsburg, in East Prussia, was against faculty psychology; advocated that human mind is one harmonious whole and not a confused mixture of many faculties; popularized terms like interest, apperception, circle of thought, concentration, correlation, culture epoch, formal steps of learning. Interest is at the basis of the Herbartian method. His publications include: *Aesthetic Presentation of the World as the Main Function of Education* (1804), *Critical Point of the View of the Pestalozzian Method of Education* (1804), *Relation of School to Life* (1818), *Encyclopedia of Philosophy* (1831).

Holt, Edward B. (1873-1946): American psychologist; provided philosophical framework for behaviourism; did not agree with Watson's complete rejection of consciousness, but agreed with him that heredity played a relatively unimportant part in shaping human behaviour; believed that the behaviour pattern of an individual is formed through learning and through the preservation of childhood patterns of behaviour; tried to synthesize the important characteristics of behaviourism and psychoanalysis.

Hooe, Charles (1610-1667): English social reformer and the most important writer on contemporary school practices; taught in a town grammar school and a private school in London; discussed the conditions of the schools and the reformed methods of instruction in his

book *A New Discovery of the Old Art of Teaching Schools* (1660) for the general profit of young school masters; laid emphasis on the earliest teaching of the child and believed: 'school is a place where indeed the first principles of all religion and learning ought to be taught, and therefore rather deserveth that more encouragement should be given to the teachers of it.'

Horne, H.H. (1874-1946): American philosopher and educator; taught at New York University and lectured at Dartmouth, North Carolina, and Harvard; represented idealistic theism implying that man is part of a larger reality, i.e., God, and the universe has a spiritual meaning; stood against the naturalism of Dewey and Kilpatrick; held that education should give to the student a view of the majesty of the Absolute and held that every student should concentrate on seven arcas—biology, physics, mathematics, psychology, literature, grammar and history, and the latter should give man the idea of his potential greatness. While Dewey and Kilpatrick emphasized the need of interest and spontaneity, Horne upheld the importance of effort and discipline.

Horney, Karen (1885-1952): German psychologist; founded the American Institute of Psychoanalysis; modified and extended Freud's work, though she basically differed from Freud regarding the conception of human nature; her main concept is basic anxiety which develops out of unhealthy parental attitudes and behaviour, as a result of which the child also develops a number of behavioural patterns to deal with his feelings of helplessness and insecurity; was optimistic that neurotic conflicts could be avoided if a child is offered a happy and secure home life full of love, warmth and understandings.

Hull, Clark Leonard (1884-1952): American psychologist; a great theorizer and an experimenter; spent about twenty years in the construction of a theory of behaviour; believed that Pavlov's conditioned reflex and the concept of reinforcement were fundamental to all learning; summarized his work in the book *Principles of Behaviour* (1943) and revised his ideas in *Essentials of Behaviour* (1951).

Humboldt, Friedrich Wilhelm Von (1767-1835): German philologist and educator; in 1808 became Privy Counsellor and Director of Ecclesiastical Affairs and Public Instruction for eighteen months, but within this short period introduced the features of the New Humanism into Prussian higher education, reorganized the system of admission to the universities, allowed

greater academic freedom, introduced examination for secondary school teachers replacing the local recruitment from students of theology and clergymen. In elementary schools, he introduced the Pestalozzian methods and encouraged individual development; took interest in the teaching of drawing and music. Throughout his career he tried to raise the cultural standard of the nation.

Hunter, William Wilson (1840-1900) : Additional Member of Viceroy's Council (1881-87); Chairman of the Education Commission of 1882; vice-chancellor of Calcutta University (1886); wrote and edited several works on Indian subjects.

Hutchins, Robert : American philosopher and educator; president of the University of Chicago; founder of the Centre for the Study of Democratic Institutions in Santa Barbara; fought vigorously for academic freedom; pleads for a real educational community where the common aim should be truth; scorns utilitarianism in education for it implies a worship of technology and leads to materialism; contends that universities should stress the great books, great ideas of mankind and liberal arts, and wants them to become centres of independent thinking and inquiry; attacks the cult of specialization; sees the vision

of one world to be established through the cultivation of reason and feels the need of a broad perspective for the modern man which would come through the study of ancient cultures and civilization. His philosophy may be summed up as in these words : 'Education implies teaching. Teaching implies knowledge. Knowledge is truth. The truth is everywhere the same. Hence education should be everywhere the same.'

Huxley, Thomas Henry (1825-1895) : English scientist, social reformer and educational thinker; was President of the Royal Society; did much to popularize scientific thought; showed great interest in questions of education. His ideas on education are : first elements of physical science should be taught in schools; physical training and drill should form part of regular school work; drawing and music should also be included in every school course; infant schools, continuation schools, and technical schools should be encouraged, and there should be an educational ladder from the gutter to the university; State should provide compulsory elementary education, but beyond which the individual should be left to himself to rise through his own merits and innate capacity.

I

Isaacs, Susan (1885-1948) : a British psychologist and trained teacher who wrote her two famous books dealing with children's intellectual and social growth : *The Intellectual Growth of Young Children* and *The Social Development of*

Young Children. She found that a number of her pupils seemed to have a faster rate of intellectual growth than what Piaget considered to be possible.

J

James, William (1842-1910) : distinguished American philosopher and psychologist of his time. leader of the influential American movement of pragmatism; criticized the doctrine of formal discipline; stressed the need for activity on the part of the child; emphasized the role of interest in learning; emphasized the importance of the formation of habits; believed 'The great thing in all education is to make the

nervous system our ally instead of our enemies'; proposed in 1884 the famous theory, known as 'James-Lange theory of emotions' (which was also formulated independently by Lange in 1885) as he wrote : 'We feel sorry because we cry, angry because we strike, afraid because we tremble' contradicting the commonsense notion that a person cries when he is sorry and trembles when he is afraid; published *The Principles*

of *Psychology* (1890) and *Talks to Teachers* (1899).

Janaka : see under 'Great Teachers of Ancient India'.

Jaques-Dalcroze, E. (b. 1865) : eminent Swiss music educator ; originated Dalcroze Eurhythmics, a system in which the pupils express musical rhythms through the movement of the body ; outlined the objectives of his system in his book *Eurhythmics, Art and Education* (1935) that the rhythmic exercises 'is to arouse and develop, by repeated exercises, the natural rhythms of the body'.

Jefferson Thomas (1743-1826) : third President of the United States ; 'father of the University of Virginia' ; the chief architect of democratic education in the U.K., proposed the development of a State system of free universal education in his 'Bill for the More General Diffusion of Knowledge' which he put before the Virginia legislature in 1779 ; envisaged the idea of the division of the country into districts, each containing a school.

Jerome (340-420 A.D.) : theologian, scholar, writer and missionary ; established and taught in a monastic school in Bethlehem ; his monastic school was extensively copied all over the western world and his typical educational work represented a sample of good Christian education of the period ; translated the Bible from Hebrew and Greek into Latin, the translation known as the Vulgate remained the official version for eight centuries. For his methods of teaching he relied upon Quintilian. Like all other fathers of the early Christian church, he influenced early Christian education by his ascetic ideal turning it away from the practical affairs of the world, from the experience of the senses, and from the

spirit of joy and freedom.

Jetari, Acharya : see under 'Great Teachers of Ancient India'.

Jitavan Salim : see under 'Great Teachers of Ancient India'.

Jnanapada, Acharya Buddha : see under 'Great Teachers of Ancient India'.

Jnana Sri Mitra, Mahapandita : see under 'Great Teachers of Ancient India'.

Johnson Samuel (1709-1784) : famous for his *Dictionary of the English Language* (1755) ; worked as a school master for a short period ; wrote : 'The first requisite is the religious and moral knowledge of right and wrong ; the next is an acquaintance with the history of mankind ; Those authors, therefore, are to be read at school, that supply most axioms of prudence, most principles of moral truth and most materials for conversation.'

Jones, William (1746-1794) : the first English scholar to learn Sanskrit and to aim at making eastern learning known to the western world ; prepared a digest of Hindu and Mohammedan Laws ; translated several Persian, Sanskrit and Arabic works into English ; was judge of the Calcutta High Court for some years.

Jung, Carl Gustav (1875-1961) : Swiss psychologist, founder of the school known as Analytic Psychology ; worked as a collaborator of Freud between 1907 and 1913 ; dissented from the teaching of Freud as he stressed the racial unconscious much more than did Freud and did not give much significance to childhood experience ; explained the concept of the libido as a general urge towards growth, activity, nutrition and reproduction. He is the founder of the typological concept of introversion and extroversion.

K

Kabir, Humayun (1902-1969) : educationist and author of books on education ; President, All India Educational Conference (1955) and of International Congress of Orientalists (1964) ; Consultant to the Fund for the Advancement of Education, New York ; Educational Adviser to the Ministry of Education for a number of years ; Union Minister for Scientific Research and Cultural Affairs ; Chairman, University Grants Commission for some time ; his chief publications on education and allied subjects

include : *Kant on Philosophy in General* ; *The Indian Heritage* ; *Science, Democracy and Islam* ; *Education in New India* ; and *Indian Philosophy of Education*.

Kamalasila : see under 'Great Teachers of Ancient India'.

Kant, Immanuel (1724-1804) : German philosopher, author of the intellectual and moral revolution which greatly shaped the philosophical thought of the 18th and 19th centuries ; a great teacher having the rare command of

knowledge, the well developed technique of instruction, and the effective art of teaching the students how to think; believed that the purpose of education is the attainment of human destiny and perfection which consist in absolute moral worth, for 'Man can become man through education only'; held that the development of education required four types of educational activity: discipline, cultivation, civilization and moralization. His insistence on freedom as the essence of man's intelligible character greatly influenced the educational theory of the 19th century. His treatise on pedagogy was in two parts: *On Physical Education* and *On Practical Education*.

Kasyapa: see under 'Great Teachers of Ancient India'.

Karve, Dhondo K. (1858-1962): a pioneer in the field of women education in India; established an 'Ashram' at Hingne, Poona where women could learn and lead a happy life; founded the Women's University in 1916 (S.N.D.T. University).

Kauravyayani-putra: see under 'Great Teachers of Ancient India'.

Keate, John (1773-1852): British educator; headmaster at Eton (1809-1834); remained mostly busy in correcting the rebellious boys who had marred the discipline of the school; became known for his constant and wholesale use of the birch, and on one occasion flogged as many as 80 boys; distrusted the boys as much as Arnold relied on their sense of honour; handed over to his successor, Hawtrey, a better disciplined school than he had found.

Keller, Helen Adams (1880-1968): a pioneer in the field of the education of the deaf; became deaf and blind at the age of 19 months but was taught to read and write; graduated from Radcliffe College; worked for the education of the handicapped all her life; wrote several books including *The Story of My Life* (1902), *The World I Live In* (1908) and *Mid-Stream* (1930).

Kellogg, Winthrop N. (b. 1898): American experimental psychologist; university professor of Florida State University; specialist in research on conditioning and learning; author of *The Ape and the Child* (1933), *An Experimental Comparison of Psychophysical Methods* (1929), *Hand-book of Laboratory Procedure* (1936), *First Course in Experimental Psychology*; *Review Questions for Introductory Psychology* (1938); has served on the Board of Editors of *Comparative Psychology Monographs* from 1942 to 1948 and of the *Psychological*

Record from 1959 to 1962. Add.: Florida State University, Tallahassee, Florida.

Kerschensteiner, Georg (1854-1932): outstanding German educator of his time; as head of the Munich school system was faced with two problems—the reconstruction of the elementary school curriculum and the reorganization of the education of adolescent workers—which he solved with the help of the principles of Pestalozzi; published *Theorie der Bildung* (Theory of Education) 1926; distinguished three aspects of education—the axiological, the psychological and the teleological; contended that education demands of everyone to embody the absolute ideas of the good, the true, the beautiful, and the holy, that the spontaneous force of the individual strives for a better integration of the personal structure, and that this striving aims the realization of one's life's vocation.

Kesavasvamin (12th century A.D.): author of the then biggest homonymous lexicon containing about 5800 stanzas; received patronage from Rajaraja Chola.

Khafi, Shaikh Zainuddin (16th century): one of the greatest learned men of his age; founded a college at Chunar. When he died in 1534, he was buried within the precincts of the college, and a school was built near Agra in recognition to his contribution to learning.

Khan, Sayyid Ahmad (1817-1898): pioneer of the movement for the intellectual and social uplift of the Muslim Community in India; felt that the traditional system of Muslim education was a great stumbling block in the way of progress and advocated Western learning. During his 38 years of government service he managed to devote considerable time and attention to literary and social work. During his visit to England in 1869-70, he studied the working of various educational institutions. He played a prominent role in the establishment of the Muhammadan Anglo-Oriental College, Aligarh in 1875, which later on developed into Aligarh Muslim University. He established the Muhammadan Education Conference in 1886 with a view to awakening the Muslim masses and organizing their education effectively and speedily.

Khusrau, Amir (13th century): great scholar and famous poet; was tutor of Prince Muhammad, the eldest son of Sultan Nasiruddin; greatly contributed to the literary world as the president of Prince Muhammad's literary society. The prince was so much fond of learned men that he took Amir Khusrau in one of his military expeditions in which the patron

was killed and the poet taken prisoner. He continued to hold a great position of honour for his scholarship and poetry during the succeeding reigns of Balban, Jalaluddin and Alauddin. Sultan Jalaluddin made him the Librarian for the Imperial Library at Delhi, a high post of great honour, and appointed him the keeper of the Qur'an, and raised him to the peerage.

Kilpatrick, William Heard (1871-1965) : American educator, popular lecturer and writer; had a considerable influence on educational developments during the past half century; popularised the educational theories of John Dewey; gave a new interpretation to the Project Method, characterizing a project as a whole-hearted purposeful activity proceeding in a social environment; stressed the role of meaningful activities and the reconstruction of experience in the lives of the students; built an educational philosophy around the concept of learning as living. His books on education include: *The Montessori System Examined* (1914); *Foundations of Method* (1925); *Education for a Changing Civilization* (1926); *Education and the Social Crisis* (1932); *Remaking the Curriculum* (1936) and *Philosophy of Education* (1951).

Kirpal, Prem : Vice-President, Executive Board of Unesco, formerly Secretary and Educational Adviser to the Government of India and Secretary General of Indian National Commission for Unesco. M.A., LL.B. (Punjab), M.A. in Modern History (Oxford). Exp. Lecturer and then Professor of History and Political Science, Punjab University 1943-45; Educational Adviser Indian High Commission in U.K. 1945-48; Deputy Secretary, Ministry of Education and Secretary-General Indian National Commission for Unesco 1948-52; Deputy Director and Acting Director, Unesco Deptt. of Cultural Activities, Paris, 1952-57; Joint Secretary Ministry of Education and Joint Educational Adviser to Government of India 1957-60; Secretary, Ministry of Education and Educational Adviser to the Government of India; Secretary-General, Indian National Commission for Unesco and Director NCERT, Delhi, 1960-68; member, numerous organisations in the field of education; leader of many Indian delegations to foreign countries; participated in several international educational and cultural conferences; Pub. *East India Company and*

Persia 1800-1810; *A Study in the Diplomatic Relations*; *Memoirs of Wollebrant de Jong*, (1624); *Life of Dayal Singh Majithia—A Social Reformer of the 19th Century*; *Main Trends in the Cultural Development of India*. Add. C/o Indian National Commission for Co-operation with Unesco, Ministry of Education, Shastri Bhawan, New Delhi-1.

Klein, Melanie (1882-1960) : follower of Freud; emphasised the early years of child's life; discovered the way in which very small children might be analysed. Her work has spread to many countries.

Koffka, Kurt (1886-1941) : one of the three original Gestalt psychologists; studied psychology under Stumpf in Berlin; during World War I worked with brain-damaged patients at psychiatric clinic; was visiting professor at Cornell and at Wisconsin and became professor at Smith College; published *The Growth of the Mind* (1921) concerned with developmental child psychology, and *Principles of Gestalt Psychology*.

Kohler, Wolfgang (1887-1967) : the youngest of three original Gestalt psychologists, spokesman for the movement and therefore the best known; studied psychology under Stumpf in Berlin; lectured at Clark and Harvard Universities; was elected president of the American Psychological Association; published *Gestalt Psychology* (1929) and *Dynamics in Psychology* (1940).

Kothari, D.S. (b. 1906) : Chairman, University Grants Commission, New Delhi. Joined Physics Department, Delhi University, 1934; served as Professor and Head of the Physics Department, Delhi University for many years and is now Honorary Professor in the University; Scientific Adviser to Minister of Defence 1948-61; Chairman of the University Grants Commission since March, 1961; General President of the Indian Science Congress Association, 1963; Pub. Many research papers on quantum statistics, pressure ionization and astro-physical subjects. Chairman of Indian Education Commission 1964-66.

Kshemendra (11th century A.D.) : a voluminous writer on a number of subjects, a court poet of King Ananta of Kashmir; a renowned grammarian.

Kumarajiva : see under 'Great Teachers of Ancient India'.

L

Lajpat Rai (1865-1928): a great patriot and leader; founder of the Servants of People Society; powerful writer and social reformer; pragmatic educator; closely associated with the Dayanand Anglo Vedic College, Lahore. He believed: 'A system of education that stresses the authority of the parent or the teacher, which is based on a suspicion of human nature and human tendencies, which is distrustful of childhood and youth, which is openly out for control and discipline and subordination, which favours empirical methods of pedagogy, which has no respect for the instincts of the boy and the girl—is not an ideal system for the production of self-reliant, aggressive (in order to be progressive) men and women that new India wants; 'Boys and girls must learn their social obligations when in their teens.' 'The aim of education is to fit men and women for the battle of life'; 'The first requisite of an efficient system of national education is that it enables every citizen to live better, and to help others in living better'; 'The first aim of all publicly imparted education in India should be to increase the productivity capacity of its citizens. Education is the first necessity of such a nation and it should be the first charge on all national revenues'. His ideas on education are to be found in *The Problem of National Education in India*.

Lancaster, Joseph (1778-1838): English teacher who developed the 'Monitorial System'; was greatly honoured by the rich and the poor; was invited to America to help start monitorial schools at New York, Philadelphia, and other places. The Governor of New York declared, "I confess that I recognize in Lancaster the benefactor of human race." The idea of the 'Monitorial System' occurred to him as the pupils in his own school were too many for him to teach alone and he could not afford to pay for other teachers.

Lane, Homer Tyrrell (1876-1925): British educator; firmly believed in self-government in educational institutions; started 'the Little Commonwealth' a reformatory school on a Dorset farm in 1912; put his ideas into practice in this institution; believed that delinquency was a result of the repression of the 'clan vital' the denial of opportunity for the full outflow of vital energy of the individual; the only laws and rules were those made by boys and girls; wrote in *Talks to Parents and Teachers*: 'Human nature is

innately good; the unconscious processes are in no way immoral. Faults are not corrected by, but brought about by, suppression in childhood..... the freer a child is, the more it will be considerate and social, the more its chief interests will be progressive, and the more its fundamental instincts.....will have valuable social outlets.'

Lashley, Karl (1890-1958): physiological psychologist; student of Watson at Johns Hopkins University; ardent supporter of behaviourism; advocated increased objectivism in psychology and rejected the study of consciousness through introspection; carried out long investigations on the role of the brain in the learning process; summarized his finding in *Brain Mechanisms and Intelligence* (1929).

Lewin, Kurt (1890-1947): psychologist of the Gestalt group; worked in the University of Berlin; did much important research on association and motivation; extended his methods from child psychology to group dynamics; in 1944 was invited to develop a new research centre for group dynamics at the Massachusetts Institute of Technology.

Linaere, Thomas (1460-1524): humanist, physician and educator of Renaissance; settled at Oxford where he lectured on medicine and also taught Greek; was tutor to King Henry VII's son Arthur and also to Princess Mary; translated medical books from Greek to Latin; wrote *De Emendata Structura* (1524) to be used in St. Paul's School, a distinguished work on grammar and the first published Greek study in England.

Locke, John (1632-1704): English philosopher; in '*An Essay Concerning Human Understanding* (1690)', he was concerned primarily with the question of how the mind acquires knowledge, and he emphatically wrote: 'To this I answer, in one word, from Experience. In that all our knowledge is founded; fully recognized the subjective nature of perception, that different people may perceive a given stimulus in different ways; marked the formal beginning of English empiricism; in *Thoughts on Education* dealt with the education of a young gentleman; regarded that the business of a teacher was to raise in his pupil a love and esteem of knowledge, rather than to teach all that was knowable; stressed the training and discipline of man's natural powers through the formation of proper habits rather than through the acquisition of knowledge.

Loyola, St. Ignatius of (1491-1556) : Spanish nobleman, the founder of the Order of Jesuits ; his inner experiences of the period of spiritual formation are embodied in the *Book of Exercises*, recognizing the necessity of further education. he learned Latin in his advanced age among little boys, and then went to the universities and took a creditable degree ; founded a religious order, the Society of Jesus (Jesuits) and was elected the first General of the Order. With a burning zeal for the spread of Christianity and the moral and religious betterment of the people he worked for the Society of Jesus.

Luther, Martin (1483-1546) : the great German Protestant reformer ; advocated the development of an organization of schools and the reformation of school subjects and activities ; was perhaps the first person to advocate strongly for tax-supported universal education ; stated 'The civil authorities are under obligation to compel the people to send their children to school. If the government can compel such citizens as are fit for military service to bear spear and rifle, to mount

ramparts, and perform other martial duties in time of war, how much more has it a right to compel the people to send their children to school ?' ; conceived education as an essential preparation for the ordinary duties of life in the home, vocation, civic life, and the church ; greatly appreciated the services of the teacher : 'A diligent devoted school-teacher, who faithfully trains and teaches boys can never receive an adequate reward, and no money is sufficient to pay the debt you owe him.'

Lyon, Mary (1797-1849) : pioneer in the cause of the higher education for women in the United States, and founder of Mount Holyoke College ; taught in many schools and academies before she came to Ipswich Seminary ; when the Seminary failed to secure an endowment, she enlisted the interest and cooperation of public-spirited people and secured one thousand dollars within two months and saved the institution which later grew into Mount Holyoke College. Co-operative housework and democratic living were the important features of the Seminary which aimed for development of enlightened and useful women.

M

Macaulay, Thomas Babington (1800-1859) : English essayist, historian and politician, famous for his *Minutes* on Education when he recommended in 1833 that English should be the medium of instruction in India ; was member of the Supreme Council, Calcutta, for five years.

McDougall, William (1871-1938) : a great psychologist ; professor of psychology at Harvard University (1920-27) and at Duke University (1927-38) ; a prolific writer ; conducted a number of experiments especially on the effects of muscular activity on the fading of visual impressions ; surveyed the relevance of physiological knowledge to psychology in his book *Physiological Psychology* (1905) ; replaced his term 'Instinct' by 'Propensity' in his later writings ; used the term 'Character' instead of 'Personality' ; wrote *Outline of Psychology* (1923), *The Group Mind* (1926), *Outline of Abnormal Psychology* (1926), *The Energies of Man* (1933), and *The Frontiers of Psychology* (1934) ; was famous for his theory of instincts.

Maclure, William (1763-1840) : first American

disciple of Pestalozzianism ; born in Scotland, settled in America ; was sent to Paris by President Jefferson to settle the claims of American citizens against the French Government, and there he made an extensive study of educational systems of Europe ; published the first accounts of Pestalozzi's philosophy in the United States ; joined Robert Owen and his Utopian colony at New Harmony ; made it a centre of Pestalozzianism ; was the organizer and president of the Academy of Natural Sciences at Philadelphia ; was the founder and the first president of the American Geological Society ; published *Opinions on Various Subjects* containing twenty essays on education.

Mahisa Thakkura : see under 'Great Teachers of Ancient India'.

Mahesvara (12th century A.D.) : a famous lexicographer ; author of *Visvaprasāsa*.

Mahidasa Aitareya : see under 'Great Teachers of Ancient India'.

Maitreyi : see under 'Great Teachers of Ancient India'.

Malviya, Madan Mohan (1861-1946) : a states-

man, social reformer and the founder and Vice-Chancellor of the Banaras Hindu University (1919-39); worked as a teacher for some time in Govt. High School, Allahabad; took a great pride in such Hindu religious books as the Vedas, the Purāṇas, the Upanishadas, the Smritis, the Mahābhārata and the Rāmāyana and wanted the system of education to include all that was best in Indian culture and thought; President Indian National Congress (1909, 1918, 1932 and 1933); attended the Second Round Table Conference in London (1931); edited a number of dailies.

Mankha (12th century A.D.): a famous lexicographer who lived in the reign of Jayasimha of Kashmir (1128-55).

Mann, Horace (1796-1859): American educator and statesman; played an important role in bringing about an enrichment of the American school curriculum, especially the elementary school curriculum; popularized the best educational thinking and practice of the mid-nineteenth century; founded the first normal school in the United States; as secretary of the Massachusetts State Board issued twelve reports on the condition of education discussing the aims, purposes and means of education; advised: 'Educate your children. Educate them in the great eternal principle of justice and right which underlie the entire length of human existence.'

Marshallman, Rev. Joshua, D. D. (1768-1837): arrived in India in 1799, started numerous schools and devoted much time to the education of Indian children; built the Serampore College; edited *Friend of India* and the *Sama-char Darpan*; published an educational pamphlet known as *Hints Relative to Native Schools*.

Mason, Charlotte (1842-1923): founder of the Parents' National Educational Union (PNEU) in 1888 in England. She was greatly concerned with the problems of parents teaching children at home, believed in the individuality of each child and was opposed to competition between children.

Mason, Lowell (1792-1872): pioneer in introducing music in the schools of the United States; organized the Boston Academy of Music. When he failed to convince the city of Boston about the importance of introducing music in the elementary schools, he himself organized classes in the afternoon, and gratuitously taught music to six hundred children for several years; Boston became convinced of the value of music, and it was made one of the subjects of study. He endeavoured to improve and extend the musical taste of the people;

became associated with Horace Mann and worked for the training of teachers of music; published music books for children; greatly contributed to the education of music.

Maula, Sayyid (13th century): a very pious and learned man; founded the first academy at Delhi during the reign of Balban; also established an alms-house for *faqirs* and poor men; many learned men and nobles were his disciples, including Khan Khanan, the eldest son of Sultan Jalaluddin. Unfortunately, he was assassinated, being suspected of a plot against the Sultan.

Max Muller, Friedrich (1823-1900): the famous German philologist who chose Sanskrit as his favourite pursuit; between 1849 and 1874 published the Sanskrit Rigveda in six volumes; edited many sacred books of the East.

Melanchthon, Philip (1497-1560): German reformer, humanist and educator: taught in the University of Wittenberg and trained a large number of young scholars who were spread over the country as teachers; organized several schools; founded and reorganised many universities; wrote a large number of books. About the purpose of education he says: 'It is the divine purpose that children be trained to piety and virtue, and only through the sciences can religion and good laws be maintained; the sciences are a gift of God; hence impiety and ignorance go together.'

Milāndapanha: see under 'Great Teachers of Ancient India'.

Mill, John Stuart (1806-1873): one of the greatest philosophical writers and thinkers of the nineteenth century; advocated generous education both in classical and scientific studies, but in his suggested curriculum more emphasis was laid on ancient learning than on scientific training, and no provision was made for modern languages. His address delivered at his inauguration as Rector of St. Andrew's University contains his views on education.

Milton, John (1608-1674): famous English poet, a champion of personal freedom; started a school in 1640 for a few selected aristocratic pupils; published *Tractate on Education*, one of the most eloquent documents on education in English, which was aimed to cut short 'the waste of seven or eight years merely in scraping together so much miserable Latin and Greek, by giving a complete and generous education, which fits a man to perform justly, skilfully, and magnanimously all the offices, both public and private, of peace and war', and to substitute a knowledge of things for a knowledge of words.

Mohammad Iqbal (1873-1938) : poet and educational philosopher ; took his Honours degree in Philosophy from Cambridge, Doctorate from University of Munich in Germany ; knew many languages—Urdu, Persian, Arabic, English, German ; had a working knowledge of several other ancient and modern languages ; taught philosophy and literature in a Lahore College for a few years and switched over to law. Iqbal does not view education as the passive acquisition of knowledge. "In all knowledge there is an element of passion and the object of knowledge gains or loses in objectivity with the rise and the fall in the intensity of passion. That is most real to us which stirs up the entire fabric of our personality." According to him, education must seek for the cultivation of the life of the spirit and use the physical resources of the world for its enrichment, and it must be permeated by a humane outlook.

Mukshakaragupta, Mahapandita (12th century A.D.) : a scholar of Jagaddala University. He was a Master of Logic and wrote the famous book 'Tarka-bhāṣhā' which was translated into Tibetan.

Montaigne, Michel Eyquem De (1533-1592) : French essayist, moralist and educational theorist ; believed in the training of judgment than mere bookish learning, because 'To know by heart is not to know at all ; it is merely to retain what one has entrusted to his memory' ; stated 'I would rather prefer wisdom—judgment, civil customs, and modest behaviour—than bare and mere literal learning.' His views on education will be found scattered through many of his essays, but particularly in *Concerning the Education of Children*.

Montessori, Maria (1870-1952) : Italian educator ; began as an assistant in the Psychiatric Clinic of the University of Rome, and then as a teacher of defectives ; believed in the training of senses, developed a large amount of sense-training material and applied her methods to normal children ; holds with Rousseau that 'nature is right' and, therefore, provides complete freedom for the child who should be able to choose whatever occupation interests him and to play or work without interference.

More, Hannah (1745-1833) : English author, philanthropist and one of the women education leaders ; influenced by Wilberforce, she and her sisters worked for the upliftment of the people around their home and taught their children ; published *Strictures on the Modern System of Female Education, with a view of the Principles of Conduct prevalent*

among Women of Rank and Fashion (1799) ; she criticized the contemporary demand for external accomplishments and knowledge without depth ; considered religion as the most important part of education ; maintained that the aim of education for women was 'to qualify them for the practical purposes of life' and to make them fit companions for men.

More, Thomas (1478-1535) : writer and scholar in the forefront of the educational movement at the beginning of the sixteenth century in England ; employed special tutors for the education of his children ; at one time taught eleven of his children and grand children under his roof. He pictured his ideal of education in some passages of his *Utopia*, where higher education is only for those who have ability and interest ; studies are carried on in vernacular, and include music, logic, arithmetic, geometry, astronomy and Greek ; pupils study according to their taste and demand of occupation ; moral education is the responsibility of selected priests who influence the pupils by force of personal examples rather than by compulsion of rules.

Morgan, Conwy Loloyd (1852-1936) : British psychologist, primarily interested in distinguishing between innate and acquired behaviour ; wrote *Habit and Instinct* (1896), *Comparative Psychology and Emergent Evolution*.

Mukerji, Ashutosh (1864-1924) : one of the greatest Vice-Chancellors of India ; Vice-Chancellor of Calcutta University for five times ; reformed Calcutta University on modern lines ; got scholars and savants from all over India and from abroad to come to Calcutta for guiding and inspiring the University ; organised post-graduate studies ; introduced Bengali as a subject up to B.A. and an independent subject for M.A. ; Member of Sadler Commission ; retired as Chief Justice of Calcutta High Court in 1923.

Mukherjee, Satis Chandra (1865-1948) : apostle of Indian Nationalism at the dawn of the present century ; chief architect of the Swadeshi Movement of 1905 ; started his career as a teacher but shifted to law, established an academy Chatuspathi which was modelled on the ideals of the ancient Tols ; founded an English journal *Dawn* in 1897 ; his greatest achievement was the inauguration of the National Education Movement in 1905 and the organization of the National Council of Education in 1906 ; wrote several articles on educational problems in *Dawn* including *The Fate of All Our Instructions, A School of Reforms, and An*

Examination into the Present System of Education in India and a Scheme of Reform.

Muleaster, Richard (1530-1611) : the first English writer on modern education whose ideas were the outcome of his many years of teaching; was the first to stress the importance of English and included it in the curriculum; extended physical activities for girls; emphasized that the most skilled and highly paid teachers should teach the lower classes which should be smaller than those at the top of the school.

Muller, George Elias (1850-1934) : physiologist, philosopher and experimental psychologist; did considerable work on visual perception and elaborated on Fechner's work on psychophysics; was one of the first after Ebbinghaus to take up the experimental study of learning and memory, and added introspective report to the objective methods of Ebbinghaus; concluded that association by contiguity alone cannot explain learning because the subjects seemed to be actively searching for relations among the stimuli to be learned; demonstrated that it is often more efficient to learn 'wholes' as contrasted with 'parts'; trained the first generation of psychologists in Europe like Wundt; made Gottingen a centre for experimental psychology which rivalled Leipzig.

Munsterberg, Hugo (1863-1916) : pioneer in applied psychology; along with Titchener studied at Leipzig under Wundt; founded an active school at Harvard together with William James who brought him to America to take charge of the Harvard laboratory; wrote about thirty books on various subjects including education, psychology and criminology.

Murphy, Gardener (b. 1895) : psychologist and writer. Since 1952 he has been directing research at the Menninger Foundation, a centre for psychiatric education, research, and improvement of mental illness; has assisted in the development of three major projects—the psychotherapy research project, the perception project and the infancy project. Several of his books are being used as text-books on personality or social psychology. In 1950, he came to India as a consultant of the Unesco to the Ministry of Education, Govt. of India. His principal work is *Personality : A Bio-Social Approach to Origins and Structure* (1947). *Human Potentialities* (1958) underlines his optimistic outlook and his belief in man's capacity for change and for self-fulfilment through self-discovery. His other publications include *A Historical Introduction to Modern Psychology* (1929), *Experimental Social Psychology* (1931), written in collaboration with his wife, and *General Psychology* (1933).

Myers, Charles S. (1873-1946) : British psychologist; leading spirit in the psychic research movement in England; was associated with Rivers and McDougall in experimental work; edited the *British Journal of Psychology*; planned psychological laboratories at Cambridge; taught and used statistics in psychology; his *Textbook of Experimental Psychology* (1909) was the first textbook to include an introduction to the use of statistics in psychology; his ideas on context, configuration and structure greatly influenced Wertheimer and Koffka; directed original research in Industrial Psychology.

N

Naik, Jayant Pandurang (b. 1907) : eminent educational planner and author : Educational Advisor, Ministry of Education and Youth Services, Govt. of India; Member of the Bombay State Board of Primary Education (1939-48); founded the Indian Institute of Education, a Post-Graduate Institute for Research and Training; founded Shri Muni Vidyapeeth, Gargoti, which is now a Rural Institute; has worked as Consultant to Unesco on a number of occasions and participated in several Unesco Seminars and

Conferences; was a member of the team appointed by Unesco to carry out a survey of Primary Education in Asia (1958-59); had a large part in drafting the Karachi Plan; was Member-Secretary, Education Commission 1964-66; author of several books on Education including *Educational Planning in India* in which he deals with the pattern of educational policy in India and discusses the long term objectives of proper planning of education in the light of the nation's unique adventure towards democratic, secular and socialistic

society. His other publications on education are : *A Student's History of Education in India During the British Period* ; *A History of Education of India during the British Period* ; *Training of Educational Administrators of India* ; *The Single Teacher School* ; *The Role of Government of India in Education* ; has edited three Vols. of *Selections from Educational Records*, Government of India.

Newman, Cardinal John Henry (1801-1890) : English educator who contributed to university education ; delivered a series of lectures in 1852 on *Idea of a University* ; believed that a university is 'an assemblage of learned men, zealous for their own sciences, and rivals of each other, are brought by familiar intercourse and for the sake of intellectual peace, to adjust together the claims and relations of their respective subjects of investigation', and the university helps to build a philosophical habit of mind : 'A habit of mind is formed which lasts through life, of which the attributes are freedom, equitableness, calmness, moderation and wisdom ; or what in former discourse, I have ventured to call a philosophical habit.'

Nietzsche, Friedrich (1844-1900) : German philosopher ; in his famous public lecture in Basel

On the Future of Our Educational Institutions, the coming of the 'higher man' who is to be noble, courteous, resolute, self-disciplined and courageous ; believed that the only justification of history is the production of a few great personalities ; that 'The education of the masses cannot be our aim, but the education of a few men for great and lasting work' ; that self assertion is the first duty of man and, therefore, education should be so shaped as to encourage rather than stifle the few great personalities.

Nunn, T. Percy (1870-1944) : one of the greatest educational philosophers of Britain ; professor of education in the University of London and Director of Institute of Education, London for a number of years ; advocated individualistic philosophy ; 'Education is the complete development of the individuality of the child so that he can make an original contribution to human life according to best of his capacity' ; believed in free discipline and stated, 'the conviction that punishment and the fear of punishment are the natural foundations of school government is gradually being recognized as merely a barbarious superstition' ; wrote *Education—Its Data and First Principles* (1920).

O

Oberlin, Jean Frederic (1740-1826) : philanthropist and educator ; for nearly sixty years as pastor of the Ban de la Roche he served a people who had suffered the ravages of war ; helped to construct roads and houses, taught better methods of farming, and above all, educated the young and established infant schools, which aimed to establish good habits, teach the three R's and inculcate the first ideas about morality and religion.

Owen, Robert (1771-1858) : English social and educational experimenter ; believed that education can be made an all-powerful factor in the formation of human character ; opened infant school in 1816 ; believed that 'Every State to be well governed ought to direct its chief attention to the formation of character and the best governed State will be that which shall possess the best national system of education.'

P

Padma Sambhava : see under 'Great Teachers of Ancient India'.

Parker, Francis Wayland (1837-1902) : American educational reformer ; transformed geography from an encyclopaedia subject to a study of the earth as the home of man ; placed

geography at the core of the curricular in which all activities were related. To him concentration was a basic principle for unifying the experiences of a growing child ; 'The doctrine of concentration is itself a science of education that will absorb the attention of

thoughtful teachers for centuries'.

Parkhurst, Helen : introduced a novel plan in the school system of Dalton, Massachusetts, which has come to be known as Dalton Plan or Contract Plan. The plan was based on the three principles of freedom, co-operation and budgeting of time. The class work was divided into units, each unit designated as 'job' meant to be completed within 20 days. The job plans were made by the teacher or pupils or both, and each pupil had to sign a contract to complete each job working at his own speed and daily recording his own progress on a job card. The details of the plan and how it worked are to be found in the book *Education on the Dalton Plan* (1922).

Parsons, Frank (1854-1908) : American educator, a great pioneer in the guidance movement; a social reformer; pleaded for vocational education in his book *Our Country's Need* (1894); organised the Boston Vocation Bureau; outlined the principles of vocational education in his book *Choosing a Vocation* (1909), published after his death; worked on the belief that it is better to choose a vocation than to hunt a job, and used the technique which involved making a survey of job availabilities and then having the individual analyse himself. The success of his idea made the Boston School Committee in 1910 order the appointment of vocational counsellors in all its high schools.

Patanchala Kapya : see under 'Great Teachers of Ancient India'.

Pavlov, Ivan Petrovich (1849-1936) : great Russian physiologist who made original discoveries concerning the digestive system, the brain and the nervous system; under laboratory-controlled conditions presented food to a dog and at the same time rang a bell, consequently discovering that simply ringing the bell called out the salivary flow, and thus concluding that if two stimuli often occur together and if one (food) is strong enough to evoke a reflex, then the second inadequate stimulus (bell) will be sufficient to evoke the response; won the Nobel Prize in Physiology and Medicine in 1904 for his work on the digestive glands; his theory of automatic responses in important activities of life had a great influence on psychology.

Payne, Joseph (1808-1876) : first professor of education in England, though poverty did not allow him to receive more than an elementary education; from 1871 onwards played an important role in improving the training and status of teachers; was a pioneer in familiarising English education with the best theory and practice of his day.

Peabody, Elizabeth Palmer (1804-1894) : one of the pioneers of women education in America; was influenced by Froebel and opened the first Kindergarten in the United States; at 18 began her career as a teacher in Boston; contributed to many educational journals, edited the *Kindergarten Messenger* which gave a fillip to a development of early childhood education. Besides kindergarten, she was interested in all phases of educational work, including the education of the American Indians.

Pestalozzi, Johann Heinrich (1746-1827) : Swiss patriot, and one of the world's greatest educationists; declared that education is the 'natural, progressive and harmonious development of all the powers and capacities of human beings'; named his direct method of acquiring knowledge as 'Anschauung' which stands for direct knowledge acquired by the pupil's own experience; observed 'I wish to psychologise education'; pleaded for 'home spirit' in the school; allowed 'punishment' a place in the school; believed that the function of the educator was to help 'nature's march of development' to ensure natural, harmonious and symmetrical progress, formulated the following practical rules: an all-round training should be the aim; the learner should be allowed all possible freedom; work should get precedence over words; method of learning should be analytic; realities should come before symbolism; organization and correlation should be ensured. His important publications include *Leonard and Gertrude* (1781), *How Gertrude Teaches Her Children* (1801), *The Swan Song* (1813) and *Letters on Early Education* (1818).

Phule, Jotiba Govindrao (1828-90) : a great social reformer who fought for the regeneration of the lower classes. As an educationist he advocated the education of the masses; established the first girls' school for the Hindus in the Bombay presidency and organised an orphanage.

Piaget, Jean (b. 1896) : one of the great pioneers in psychological investigation; simultaneously worked as a professor of child psychology at the University of Geneva, co-director with Pierre Bovet of the Institute J. J. Rousseau (a teacher training institution affiliated with the University) and director of the Bureau International d'Education in Geneva; revolutionised thinking and understanding about the intellectual growth of young children. His investigations show that the young child finds everything revolving around himself; that his development may be retarded if not allowed a fairly

wide sensory and motor experience in his first years; that about the age of 7, the child becomes less ego-centric and can think logically while solving concrete simple problems; that about the age between 11 and 14, the child develops abstract reasoning, that children learn by constant interaction with the environment.

Pippalada : see under 'Great Teachers of Ancient India'.

Plato (427 B.C.—347 B.C.) : the first western educational philosopher born in Athens; closely attached to Socrates as his disciple; placed an exalted value on education; regarded education as a process of moral training—'I mean by education that training which is given by suitable habits to the first instincts of virtue in children.. which leads you always to hate what you ought to hate and love what you ought to

love, from the beginning of life to the end'; stressed that education is a primary duty of the State. To him the purposes of education are (1) to ascertain State unity; (2) to develop civic efficiency; (3) to produce a love for truth, beauty and goodness; (4) to harmonise the personality of the child; (5) to produce a self-governing individual; and (6) to teach children to live in harmony; 'The Republic' and 'The Laws' have education as their major theme.

Prajnakaramati, Sri Mahapandita : see under 'Great Teachers of Ancient India'.

Pravalhana Jaivali : see under 'Great Teachers of Ancient India'.

Purushottamadeva (12th century A.D.) : a Buddhist lexicographer who wrote three lexical works, *Trikāndasheṣa Haravali* and *Varnadesanū*; flourished during of reign of Lakshmanasena.

Q

Quintilian (c. 38—86 A.D.) : Roman lawyer, orator, senator and teacher; regarded as an example of Roman teaching at its best; wrote *Institutes of Oratory* containing his experience of 20 years of teaching. His ideas about children and their education are just as valuable today as it were nineteen centuries back, for instance: education must begin at an early age; seventh year is the time for definite instruction; public school is better than private instruction on social grounds; total prohibi-

tion of relaxation may make a boy averse to learning, and frequent relaxation may make him idle; whipping is unseemly; teacher should respect the individuality of the child and must pay attention to individual difference; character must be the end of education; teacher must come in close contact with his pupils; school work should be related to life. No other work exercised so much influence on the educational thought of the Renaissance as did the *Institutes of Oratory*.

R

Radhakrishnan, Sarvapalli (b. 1888) : Indian philosopher and educationist; Professor of Philosophy at Madras, Mysore and Calcutta Universities for a number of years; Vice-Chancellor, Andhra University (1931-1936); had the unique distinction of holding simultaneously two university chairs in two continents—George V Chair of Philosophy at Calcutta and Spalding Chair of Eastern Religion and Ethics at Oxford University—besides working as the Vice-Chancellor of Banaras Hindu University; Chairman of the Executive Board, Unesco (1948); Chairman, University Education Commission

1948-49; Ambassador of India in U.S.S.R.; Vice-President of India (1952-1962); President of India (1962-1967); Dr. Radhakrishnan symbolizes India—ancient and modern, secular and spiritual. He epitomizes the quintessence of all cultures and contributes to the building of a bridge of understanding between the East and the West. As a spiritual mentor, he has preached an awareness of the finer values of life. According to him education must develop human values. He observes : 'Education should give us a purpose. Man's completeness results from the pursuit of truth and its

application to improve human life, the influence of what is beautiful in nature, man and art, and spiritual development and its embodiment in ethical principles'; 'It is possible for us, by the control we have obtained over the forces of nature, to bring about paradise on earth. It is equally possible for us, by pressing a button, to destroy continents. If the choice is to be made wisely, we must be cultivated in the arts of civilized life. Humanistic training and technological study must be regarded as complementary to each other. They should not be regarded as divorced, or as separated from each other.' His erudition and scholarship are well preserved in his beautifully executed writings: *Indian Philosophy, The Hindu View of Life, An Idealist View of Life, The Religion We Need, Eastern Religion and Western Thought, Education, Politics and War, Fellowship of the Spirit, The Concept of Man, My Search for Truth, The Principal Upanishads and Freedom and Culture*.

Raghunandanadasa Raya : a scholar of Mithilā University and pupil of Mahesa Thakkura. At the instance of Akbar he went out on an intellectual conquest and defeated several of his opponents in disputations. Akbar was so pleased that he rewarded him with the whole tract of Mithilā which he transferred to his guru Mahesa Thakkura who thus became the founder of Darbhanga Raj family.

Raghunatha Siromani (16th century A.D.) : first student of Nādiā University. He was deputed by Vasudeva Sarvabhaum to exact from the proud University of Mithilā the permission to grant degrees for Nādiā. He brilliantly succeeded in his work by defeating in argument his teacher of Mithilā, thus proving that Nādiā could out rival Mithilā. As a result a Chair of Logic was instituted in Nādiā breaking the monopoly of Mithilā in that subject. He was the founder of a school of logicians including names like Mathuranatha, Ramabhadra and Gadadhara Bhattacharya.

Raikva : see under 'Great Teachers of Ancient India'.

Ramus, Petrus (1515-1572) : French humanist and educational reformer ; as principal of the College of Presles undertook the revision of all the liberal arts ; wrote on grammar, rhetoric, dialectic, mathematics and physics and produced 62 works ; suggested university reforms in *Recommendations for the Reformation of the University* (1562) ; aimed to free liberal arts from barrenness ; held that the selection of subject matter should be based on the observation of nature, and that the system or

arrangement of subject matter should be based on the law of truth, the law of justice and the law of wisdom.

Ranade, M.G. (1842-1901) : a prominent social worker. It was mainly due to his efforts that modern Indian languages were introduced at the B.A. and M.A. examinations.

Rao, V.K.R.V. (b. 1908) : Union Minister of Education and Youth Services (India) ; Professor and Head of the Deptt. of Economics of the University of Delhi for a number of years ; founder and the first Director of the Delhi School of Economics ; Vice-Chancellor of the University of Delhi ; resigned this post to return to academic work on a full-time basis as chief of an All India Institution specialising in advanced study of research in problems of Economic Growth and Development ; Member, Indian Planning Commission ; Member and Chairman of the United Nations Sub-Commission on Economic Development (1947-50) ; Member of the Governing Council of the International Association for Research in Income and Wealth ; President of the Indian Economic Association ; Member of the International Statistical Institute ; served as a member of important national and international committees and commissions ; worked as the Chairman of the Programme Evaluation Board of the Planning Commission (1956-57) ; Chairman of the Steering Committee of the Indian Conference on Research in National Income ; Chairman, Governing Body, Demographic Training and Research Centre, Bombay and Chairman, Demographic Research Advisory Committee of the Government of India ; Minister for Transport and Shipping (1967-69) ; Minister of Education and Youth Services since Feb. 1969. His publications include a number of books on economics and particularly on India's National Income. The volume on *Education and Human Resource Development* brings together an integrated picture of the role that education can play in human resource development.

Ratke, Wolfgang (1571-1635) : German scholar and one of the pioneers of modern pedagogy ; studied theology at the university of Rostock but gave up the idea of becoming a minister owing to his inability to speak in public, and turned his attention to the improvement of language instruction ; tried his ideas of teaching languages first in the capacity of a private teacher in Amsterdam ; returned to Germany where the German princes became interested in his plan to reform the teaching of languages which also aimed at replacing of Latin by the

vernacular as the medium of higher education and the bringing about of German unity; gave direction to the writing of textbooks in vernacular and carried out reformation of the school system at Augsburg and other places. Unfortunately, his experiments failed partly due to sectarian controversies and partly due to the novelty of his plan which needed more time and training of teachers. Great credit is due to him as he initiated the search for the 'Method of Nature' and advocated the modern maxims of teaching: one thing at a time; each thing to be often repeated; everything without compulsion; no rote learning; things first and explanations afterwards.

Ratnakara Santi, Mahacharya: sec under 'Great Teachers of Ancient India'.

Ratnakirti, Mahapandita: sec under 'Great Teachers of Ancient India'.

Riehl, Johann Paul Friedrich (1763-1825): great German humourist and prolific writer, sometimes known as Jean Paul; served as a family tutor and later conducted a private school before devoting himself to writing. His views on education are to be found in *Levana*, or the Doctrines of Education (1807); criticized Rousseau's *Emile* as a negative scheme but accepted his humanizing point of view; pleaded for a joyous freedom in the early life of a child; underlined the educative functions of play, games, dancing, music and fairy tales, thus becoming a fore-runner of Froebel; criticizes 'classical parrots' and advocates vernacular as the medium of instruction.

River, W.H.R. (1864-1922): British psychologist; did a good deal of pioneer work in applying psychological methods of healing to war neuroses; researched in India in 1902-03, introduced psychoanalytical ideas to British psychologists through two of his books *Instinct and the Unconscious* (1920) and *Conflict and Dream* (1921).

Rogers, Carl R. (b. 1902): American psychologist, psychotherapist, professor of psychology and psychiatry at the University of Wisconsin; originator of the non-directive 'client centred' theory of psychotherapy; author of *Measuring Personality Adjustment in Children*; *The Clinical Treatment of the Problem Child*; *Counselling and Psychotherapy*; *Counselling with Returned Servicemen*; *Psychotherapy and Personality Change*; *Client-Centred Therapy*.

Rousseau, Jean Jacques (1712-1778): Swiss educational reformer; had a mystical attachment to nature, an abnormal sex consciousness and a great yearning for personal freedom; became a great educator of the world; believed

child should be treated as a child and taught according to his nature: 'Nature wills that children should be children before they are men...child has ways of seeing, thinking, feeling peculiar to itself; nothing is more absurd than to wish to substitute ours in their place'; asserted teaching by 'things'; did not believe in giving any verbal lesson to the child; believed in the theory of 'discipline of consequences'; divided man's life into four stages: (1) infancy (from one to five), (2) childhood (from five to twelve), (3) boyhood (from twelve to fifteen) and (4) youth (from fifteen to twenty). His main works on education are *Emile* and *The New Heloise*.

Roy, Raja Ram Mohan (1772-1833): an ardent Indian educationist and social reformer; a great scholar of Sanskrit, Greek, Latin, Hebrew, Arabic, Persian and English. Although a great Sanskrit scholar himself, he was against educating the Indians through Sanskrit and strongly advocated the study of English and western science. He was the first Indian to interpret England to India and India to England. He played an important part in establishing educational institutions in India.

Rumi, Maulana Jalaluddin (14th century): a great philosopher, renowned master of many subjects who used to lecture on theology and explain the jurisprudence and the commentaries on the Qur'an in the famous Firuz-Shahi-Madrasah, founded by Emperor Firuz Shah.

Runkle, John Daniel (1822-1902): American leader in the movement for the introduction of manual training in the schools of the United States; professor in the Massachusetts Institute of Technology (1865-1870) and its president (1870-1878); published *Manual Element in Education*.

Ruskin, John (1819-1900): one of the greatest English writers who devoted himself to educational work as social reformer or as interpreter of art; his *Unto this Last* states in outline his proposals for State Schools; *Time and Tide* contains some letters on the general subject of education; *Sesame and Lilies* illustrates his conception of the place of literature in education; placed physical health and moral character before all other things; advocated manual training and desired to see craftsmanship revived in all its branches. Gandhiji was greatly influenced by his books.

Russell, Bertrand (b. 1872): distinguished himself as a brilliant student at Trinity College, Cambridge; became a fellow of the college in 1895; was awarded a Nobel Prize in literature in 1950; thinks that education should develop,

four qualities in child—vitality, courage, sensitiveness and intelligence; would like the child to develop these mental qualities: curiosity, open mindedness, faith, perseverance, concentration, patience and exactness. His outstanding works include: *On Education* (1926),

Principles of Mathematics (1926), *The Outline of Philosophy* (1928), *The Scientific Outlook* (1931), *Education and the Social Order* (1932), *An Enquiry into Meaning and Truth* (1940), *Human Knowledge, Its Scope and Limits* (1948), and *The Impact of Science on Society* (1952).

S

Sadler, Michael (1861-1943): British educator who was appointed in 1894 Director of the Education Department's Office of Special Inquiries and Reports and who later on surveyed the educational needs of many Local Educational Authorities; worked for a few years as Professor of the History and Administration of Education at Manchester; was Vice-Chancellor of the University of Leeds; headed the Calcutta University Commission in 1917 which was appointed 'to enquire into the condition and prospects of the University of Calcutta and to consider the question of a constructive policy in relation to the question it represents'. The Report of the Commission is a great document in the history of Indian Education.

Saiyidain, K.G. (b. 1904): educational thinker and author of several books on education; Secretary and Educational Adviser to the Government of India, Ministry of Education (1950-61); Visiting Professor of Education, Columbia University, New York (1958); University of Wisconsin (1962-63); and Stanford University (1964); Member, Basic National Education Committee and All India Board of National Education; Member, Secondary Education Commission; Member, University Grants Commission; member of various national and international organizations in the field of education; leader of the Indian Delegation and President of the U.N. Regional Youth Welfare Seminar (1951); leader of the Indian Delegation and President Regional Seminar on Compulsory Education in South-East Asia; Chairman, Executive Board of the Indian National Co-operation with Unesco; President, New Education Fellowship; Member, Indian Education Commission 1964-66; Director, Asian Institute of Educational Planning and Administration, Delhi. His publications include: *Principles of Education*, *Iqbal's Educational Philosophy*, *Problems of Educational Reconstruction*, *Education for International Understanding*, *Humanist Tradition in Indian Educational Thought*, *Universities and the Life of Mind*, *Man in the New World and The Mind's Pilgrimage*.

Sakayana: see under 'Great Teachers of Ancient India'.

Sampson, George (1882-1950): British educator who coined the phrase 'Every teacher is a teacher of English'; sometimes described as the father of the modern liberal approach to the teaching of English. His most important book is *English for the English* (1921).

Sanderson, Frederick William (1857-1922): was H.G. Wells's 'great school master'; said 'Education must be fitted to the boy, not the boy to education'; organised the Oundle School and made every boy responsible for his own task but though required to cooperate with his fellow workers.

Santarakshita: see under 'Great Teachers of Ancient India'.

Santayana (1863-1952): one of the most distinguished American educators; philosopher, prolific writer, poet and critic; left America and made Europe his home; held that the evils of the world could be overcome through genuine education and philosophic insight; recognized some values in democracy, but also pointed out its weaknesses as it standardizes human beings, leads to the rule of the mediocre and prevents the birth of any genuine culture; objected to the over-emphasis on methodology in education, since good teaching cannot be systematized; felt that no man could be truly educated who did not appreciate poetry and literature. He did not find the ideal type of education in the modern institutions and admired the intellectual life represented by Athens; realized that a real liberal education was meant for a minority, while the teaching of three R's was sufficient for the masses; rejected the idea that all are equal in education and believed in a natural aristocracy of talent; stressed the need for culture without any utilitarian motive; held

that the past should be our guide, as its ideas continue to influence the present.

Sarmiento, Domingo Faustino (1811-1888) : the greatest of Spanish-American educators; the President of the Republic of Argentina (1868-74) who directed the nation along the lines of his ideas which he held with great determination and conviction; upheld the dogma 'We must make a school of the whole Republic'. He began as a teacher at the age of 15 when he opened his first school among the hundreds of schools he opened for the nation. He brought educational ideas from his travels in Europe and America and successfully applied them in his educational work. Whether he worked as a school master, superintendent of schools, Minister of Public Instruction or as President of the Republic, he believed on two principles basic for the development of an efficient system of education—that education must have national direction, and that there was need for normal schools for the supply of good teachers; he held that a republican form of government was impossible without a good system of popular education.

Satyakama Jabala : see under 'Great Teachers of Ancient India'.

Schiller, Friedrich (1759-1805) : great German poet, historian, philosopher and educator; published *Letters on the Aesthetic Education of Man* dealing with the two contradictory impulses—the sensual impulse and formative impulse—which are harmonized by creative art, for art is the most important means of a truly humanizing education; viewed education as a process of emotional development; influenced German leaders and thinkers at the most impressionable periods of their lives by the dominant ideas contained in his works, like moral freedom, high concept of the dignity of humanity, and endless striving to harmonize the sensual and the rational nature of man; directly contributed to education through his essays on the *Aesthetic Education of Man*, *On the Sublime*, and *On the Necessary Limits in the Use of Beautiful Forms*.

Schonell, Fred (b. 1900) : first to receive in 1962 the Machie Medal for outstanding work in education in Australia; was engaged in research in educational psychology from 1928 to 1931; the professor of education, University College of Swansea, 1942 and Professor of Education, Head of the Department of Education and Head of the Remedial Education Centre, 1946-50; Vice-Chancellor of the University of Queensland since 1960. His works include : *Essentials in Teaching and Testing Spelling*

(1932), *Backwardness in the Basic Subjects* (1942), *The Psychology and Teaching of Reading* (1945), *Diagnostic and Attainment Testing* (1949), *The Subnormal Child at Home* (1959), and *Failure in School* (1962).

Schwartz : a Danish missionary who is generally looked upon as the pioneer of education in the province of Madras in the eighteenth century; utilized the purse presented by Haider Ali of Mysore in founding two schools—one at Trichinopoly and the other at Tanjore; started three schools at Tanjore, Ramad and Shivanga in 1785 with the object of teaching English to Indian boys.

Seguin, Edouard (1812-1880) : French educator and a pioneer in the education of idiots; believed that their body and the senses should be trained as part of their whole personality; founded the first school for the training of the feeble-minded children in Paris in 1839. His important publications include *New Facts and Remarks Concerning Idiocy* (1870) and *Psycho-Physiological Training of an Idiotic Eye* (1880).

Sen, Keshub Chander : Indian social reformer with a firm faith that without a sound system of education, the country could not get rid of the many evils it suffered from. He wrote to the then Viceroy and Governor-General of India : 'My Lord, India's first and chief requirement is an efficient and comprehensive system of education which will bring the light of useful knowledge to all classes of the community'; attached high priority to women education as it constituted an integral part of social progress; believed that moral training must be the core of any system of general education, for 'knowledge without morality is a danger and a curse, and unquestionably it is more so in India than elsewhere'.

Shankershet, Jagannath (1802-1865) : a central figure of the Indian community in Bombay for many years; member of various Councils and Boards; promoted education generally; was one of the founders of the Elphinstone College; favoured the use of Indian languages as the media of instruction at the college stage; wrote in his Minute dated 1st May, 1847 : 'I repeat, I am far from wishing to discourage the study of English, but I believe it be beyond the reach of the masses of the people. I cannot at the same time help remarking that the encouragement which we provide to vernacular education is far less than what the real interests of Native Education demands.'

Sheldon, Edward Austin (1832-1897) : American educator, first principal of the Oswego Normal

School ; originator of the Oswego movement. As the aim of the Normal School was to introduce the Pestalozzian methods, he gathered educators from Europe and America who taught at Oswego and turned out large group of teachers, and thus influenced the teaching at American schools. This was known as Oswego Movement. The Oswego practice laid emphasis on object teaching, studying the natural objects instead of merely talking and reading about them and encouraging free discussion in the class room rather than the reproduction of words from the books.

Śhraddhanand, Swami (1857-1926): Indian educator and social reformer ; founder of the Kangri Gurukul and other educational institutions, devoted himself to the propagation of the noble ideals of the ancient rishis. The primary purpose of founding the Gurukul was of reviving the ancient institution of Brahmacharya, of rejuvenating and resuscitating ancient Indian philosophy and literature, conducting researches into antiquities of India, building up a Hindu literature and incorporating into itself all 'that is best and assimilable in Occidental thought and producing preachers of the Vedic religion, and, good citizens of a culture. Like Swami Dayananda, he accepted the Vedas as his rock of firm foundation.

Silabhadra: see under 'Great Teachers of Ancient India'.

Skinner, B. Frederic (b. 1904): American psychologist ; greatly interested in the study of behaviour ; popularized teaching machines in 1954 and constructed one of the most popular teaching machines ; published *The Behaviour of Organisms* (1938), and *Science and Human Behaviour* (1953) containing conclusions of his experimental and theoretical works during the period 1930-1945.

Smith, Goldwin (1823-1910): English educational reformer and prolific writer ; served as assistant secretary to the Royal Commission investigating Oxford University and as Secretary to the Second Commission (1852), and his report helped to free Oxford from many abuses ; professor of Modern History at Oxford (1858-66) ; professor of English and Constitutional History in Cornell University in America.

Socrates (469-399 B.C.): Greek philosopher, the master of Plato ; the first great teacher of the Western world ; the famous exponent of the analytic, drawing out method of teaching ; wrote nothing himself, his life and teachings were recorded by his pupil, Plato ;

believed that the clear sight of truth is wisdom, and wisdom will always lead to virtue, and therefore made persistent efforts to get his pupils to see things as they really are. His method consisted of seizing upon a word in casual conversation ; asking for its explanation ; subjecting the explanation to further questions till the pupil becomes conscious of his ignorance ; again starting further questions to clear the confusion and to reach the truth. The Socratic method of teaching has survived for more than two thousand years and is still in use.

Solon (639-559 B.C.): one of the Seven Sages of Greece, and famous law-giver who guided the life of Athens for several centuries. Early Athenian education was largely the result of his influence. He encouraged learning ; formulated the ideals upon which it was to be based ; laid emphasis upon the individual and the development of his personality ; stressed the teaching of dancing, music and poetry for their elevating influence on intellect and morals.

Somadeva (13th century A.D.): a great grammarian who wrote '*Sabdar-navachandrika*' ; a contemporary of king Bhojadeva.

Spearman, Charles (1863-1945): British psychologist ; studied at various German Universities—Wurzburg, Gottingen, Berlin and Leipzig ; did research on spatial perception under Wundt ; propounded his two-factor theory of intelligence ; worked for many years at the university of London ; experimented with school children.

Spencer, Herbert (1820-1903): eminent English philosopher ; started his independent writing in 1858 ; held that the aim of education was 'to prepare us for complete living', for complete living one must know how to develop one's body and mind, how to manage one's whole affair, i.e., to bring up a family, to behave like a good citizen, to utilize leisure profitably, and to utilize one's whole capacity for one's own and social welfare ; recorded some important principles of education popularly known as maxims of education 'From Simple to Complex', 'From Known to Unknown', 'From Indefinite to Definite', 'From Concrete to Abstract', etc. His publications include *The Principles of Psychology* (1855), *Education* (1861), *First Principles* (1862), *The Principles of Biology* (1864-1867), *The Principles of Ethics* (1892-93), and *The Principles of Sociology* (1876-96).

Śthiramati: see under 'Great Teachers of Ancient India'.

Stout, G.F. (1860-1944): British psychologist; studied under Ward at Cambridge, his *Manual of Psychology* (1898) was a text book for many years; his *Analytic Psychology* (1896) is still considered to be a major work in the philosophy of mind; an important transitional thinker in the move from mental philosophy to strictly empirical psychology.

Stow, David (1793-1854): British educational reformer; started a Sunday evening school for a slum; but finding that a few hours spent on Sunday could not counteract the influence of week spent in the street, changed street training to school training; developed his own training system in which he made distinction between 'teaching' and 'training': "We hear from all quarters 'train up a child' but on explanation the process that is actually meant is teach or instruct, not train"; started a juvenile training school to apply his system. Teaching, according to him, was only concerned with the mind, while training took care also of the body and the character of the child. He made great contribution to education by showing that teaching is not necessarily training.

Strang, Ruth (b. 1895): American educator and writer. She was professor emerita of education of Columbia University and became an authority on student personnel work during 40

years of her teaching at the Teachers' College in the university. She is internationally known for her work in the field of reading and communication, student counselling, development and adjustment. She directed the High School and College Reading Centre at the Teacher's College; regarded reading as a continuing learning process that influences personality development, and stressed the vital casual relationship between a person's life and the books he reads. Her numerous publications include: *The Role of the Teacher in Personnel Work* (1953), *An Introduction to Child Psychology* (1959), *Helping Your Gifted Child* (1960). **Subhakara, Pandita (12th century A.D.)**: a scholar of Jagaddala University. He was the guru of Sakya Sri, the abbot of Vikramasila University. His Sanskrit work was later translated into Tibetan.

Sully, James (1842-1923): British psychologist; published *Studies in Childhood* (1895); wrote a number of textbooks which were prescribed in the U.S.A. as well as in Britain in the early psychology courses; his *Outlines of Psychology* (1884) and the *Human Mind* are scholarly works; established a laboratory in 1897. William McDougall was one of his assistants.

Svetaketu: see under 'Great Teachers of Ancient India'.

T

Tagore, Rabindranath (1861-1941): a poet and patriot, an educationist and artist, a social reformer and philosopher. After a private education in India he was sent to England in 1877 for becoming a barrister but he soon returned to India. He burst into international fame as his book 'Gitanjali' won the Nobel Prize for literature in 1913. He utilized the whole amount of his award, £ 8,000 for the upkeep of his famous school 'Shantiniketan' which he had founded at Bolepur in 1901. This school opened in a sylvan surrounding was patterned on the model of ancient 'Ashrams'. In 1921, his school 'Shantiniketan' grew into a World University, called 'Visva-Bharati'. His 'Visva-Bharati' stands as a visible symbol of the synthesis of his patriotism and cosmopolitanism. From *Shikshar Herpher* (Our Education and its incongruities) written in 1892 at the age of 31 to the *Conra-*

cation Address to Gurukul Kangri delivered in 1941, the year of his passing away, ranges a period of half a century filled up by his innumerable writings and talks on educational problems. 'Harmony with all things' is the basic principle of Tagore's philosophy. He believed that child's education must be organised in natural setting; considers individual of supreme importance in any scheme of education. 'I believe that the object of education is the freedom of mind which can only be achieved through the path of freedom—though freedom has its risks and responsibility as life itself has. I know it for certain, though most people seem to have forgotten it, that children are living beings—more living than grown-up people who have built their shells of habit around them. Therefore, it is absolutely necessary for their mental health and development that they should not have

mere schools for their lessons, but a world whose guiding spirit is personal love.' "Willingly, therefore, I harness myself in my advanced age to the arduous responsibility of creating in our educational colony at Shantiniketan a spirit of genuine international collaboration based on a definite pursuit of knowledge, a pursuit carried on in an atmosphere of friendly community life, harmonized with Nature and offering freedom of individual self-expression."

Taponitya Pauru-sishti: see under 'Great Teachers of Ancient India'.

Tathagata Rakshita, Mahapandita: see under 'Great Teachers of Ancient India'.

Terman, Lewis, Madison (1877-1956): American psychologist; indissolubly linked with the revision of Binet Test; published the new revised Stanford Binet Test in collaboration with Maud A. Merrill in 1934; one of the first psychologists to realise the possibilities of measuring intelligence through this method. His 'Group Test of Mental Ability' was most widely used in schools after the World War I.

Thomson, Godfrey (1881-1955): Professor of Education, University of Edinburgh and Director of Studies at the Edinburgh Training Centre from 1925 to 1951. Earlier he served as a Visiting Professor of Education in Columbia University (1923-24). He earned wide recognition as an educational thinker and researcher. He was a member of the National Foundation for Educational Research and also of the International Statistical Institute; served as President of the British Psychological Society (1945-46). His publications include: *Instinct, Intelligence and Character, An Educational Psychology*; *A Modern Philosophy of Education*; *The Factorial Analysis of Human Ability*; *The Geometry of Mental Measurement*; and *The Moray House Tests*.

Thorndike, Edward Lee (1874-1949): American psychologist often classified as a 'Functionalism' although he called himself a 'Connectionist'; first to apply methods of quantitative research to educational problems; leading worker in the field of animal behaviour; devised some of the widely used intelligence tests; formulated theories of mental testing; worked for Ph. D. under William James who gave Thorndike his cellar to work in at his home, as no laboratory space was available at Harvard, and Thorndike's land-lady objected to his keeping chickens in the bed room; his theory of learning had a great influence on systematic psychology; the 'Law of Effect' became a basic principle in the Behaviourism of both B.F. Skinner and

C.L. Hull; published more than 50 books either alone or with his collaborators; *Animal Intelligence* (1911), *Educational Psychology* (1903), *Introduction to the Theory of Mental and Social Measurements* (1904), *Fundamentals of Learning* (1933) and *Human Nature and the Social Order* (1940) are among his distinguished works.

Thring, Edward (1821-1887): famous headmaster of Uppingham School in England (1853-86) who worked hard for raising it to a leading public school; believed that 'every boy can do something well'; insisted on individual attention to bright and dull alike; instituted the first gymnasium in any public school in England; attached great importance to music and his was the first school where it was cultivated on a large scale; identified heart and soul with the school as is evident from his *Diary*; published *Education and School* (1864), *Theory and Practice of Teaching* (1883), and *Thoughts on Life Science* (1869).

Titchener, E.B. (1867-1927): psychologist born in England, worked in America; studied under Wundt at Leipzig; did much work to develop Cornell Laboratory in America; was responsible for the highest development of structuralism, and despite the losing battle against functionalism remained true to the Wundtian tradition; believed that the science of psychology should deal only with things as they are found to exist, and excluded references to speculative problem of mental processes; wanted to extend the methods of experimental science to mental processes; was editor of the *American Journal of Psychology*; translated Wundt's *Vorlesungen* and Kulpe's *Grundriss* into English; published the *Primer of Psychology* (1881) and *Experimental Psychology* (1901-05).

Tolman, Edward Chace (1886-1959): American psychologist, active experimentalist; experimented with rats; introduced the concept of 'intervening variables' between stimulus and response and considered goal-seeking as an objectively observable aspect of behaviour; became a cause of major split in the Behaviourist School. His school of psychology may be termed 'Purposive Behaviourism'.

Tolstoy, Count Leo Nikolayevich (1828-1910): one of the most distinguished personalities in Russian literature. persistent advocate of progressive ideas; devoted much time in organizing village schools; edited an educational magazine in which he advocated his ideal of free education and described his teaching methods. His idea was not to force anything

on the child ; every pupil was free to come to school, free to sit where he liked, free to learn only when he liked, and free to criticize or suggest ; the keynote of all his educational effort was freedom. In teaching composition, he believed, that it was necessary to free the children from worry about the mechanical part of the work till they have realized their creative power and he laid down elaborate rules for

encouraging composition. As he was greatly handicapped in his teaching for the non-existence of suitable reading books, he devoted himself to the writing of admirably simple and absorbing stories for children and peasants. *Twenty-three Tales* and *The Teaching of Jesus* were written for children ; *On Popular Education* deals with the methods of teaching.

U

Udanka-Saulbayana : see under 'Great Teachers of Ancient India'.

Uddalaka Aruni : see under 'Great Teachers of Ancient India'.

Unsuri (11th century) : one of the greatest scholars of his age, poet, philosopher and linguist ; acted to Sultan Mahmud of Ghazni as a censor of literature, and no literary work

could be brought to the Sultan without Unsuri's approval ; was appointed as a professor of the University of Ghazni, and four hundred poets and learned men as well as all the students of the University of Ghazni acknowledged him as their great master ; was made the poet-laureate ; Asjudi and Farrukhi were among his famous pupils.

V

Vagisvara Kirti, Mahapandita : see under 'Great Teachers of Ancient India'.

Vairochana Rakshita, Mahacharya : see under 'Great Teachers of Ancient India'.

Vaizey, John (b. 1929) : British economist and educator, widely known for his books on educational economics ; received master's degree from both Oxford and Cambridge ; has a wealth of experience as a lecturer at Worcester College, Oxford, as a practising economist and as an adviser to a number of international organizations like the U.N., the Unesco, the OECD and the ILO concerning education and economics. He served as the director of the research unit in economics and administration of education set up by the Ford Foundation at the University Institute of Education, London, from 1960 to 1962. His *The Costs of Education* (1958) is a study of the amount of money allocated to education in Britain from 1920 to 1955, pointing out that the proportion of the national income spent on schools and universities was inadequate. *The Economics on Education* (1962) deals with the educational problems of under-developed countries and how much money should be spent on

education for positive planned development, and *Education for Tomorrow* (1962) deals with the educational planning in Britain and suggests points for reform.

Vasubandhu : see under 'Great Teachers of Ancient India'.

Vasudeva Sarvabhauma (1450-1525) : a great scholar and founder of Nādiā School of Nyāya. He was born in Nādiā and after being thoroughly educated by his learned father he went to Mithilā where he was given the title of Sarvabhauma for his great merit and scholarship. As a reaction to Mithilā's practice of rigidly guarding its treasure of knowledge and not allowing any books or notes to be taken away beyond its premises. Vasudeva committed to memory the whole of 'Tattva-Chintāmani' and 'Kusumāñjali'. Fearing risk to his life he spent some time in Banaras before returning to Nādiā where he reduced to writing the two books he so laboured to memorize and thus founded his Academy of New Logic at Nādiā.

Vibhutihandra, Mahapandita (12th century A.D.) : a great scholar of Jagaddala University. He was the author of 6 works in Sanskrit, all of which he translated into Tibetan besides

translating 18 other Sanskrit works. Most probably he visited Tibet.

Vidya Sagar, Ishwarachandra (1821-1892): a great Indian scholar and social reformer; served as a Pandit in the Fort William College, an inspector of schools, and as the Principal of Calcutta Sanskrit College. He worked for the removal of restriction of admission on the basis of caste; stood for the principle of making the people's own language as the medium of all instruction including the Western Sciences; promoted women education; established a number of girls' schools; founded the Vidya Sagar College; translated a number of Sanskrit and English books into Bengali. He was, in fact a humanist, 'intellectual entrepreneur' and a social reformer.

Vijnanesvara (12th century A.D.): a great philosopher and commentator on Yajñavalkya; court poet of Vikramāditya VI (1076-1126). He held that begging for food was one of the duties of the students and according to him the student might beg from the three upper classes and, in times of distress, from all the four classes; did not consider that learning from a paid teacher was a sin provided the student paid the fees without a prior agreement; maintained that beating a pupil should be resorted to only for correction.

Viryasinha: mainly known as an associate of Dipamkara Atisa whom he helped at the Vikramasila University in translating into Tibetan two important Sanskrit works. He popularized Buddhist literature in Tibet.

Vittorino Da Feltre (1378-1446): humanist scholar and teacher of Renaissance; was appointed professor of rhetoric at Padua, but resigned as he saw lack of discipline and moral purpose among the students; started a school at Mantua. In his school the medieval methods were discarded and the subjects were infused with human interest; corporal punishment was eliminated as far as possible, and great attention was paid to games and exercises to make the pupils healthy and hardy. He may be considered the first modern school master who tried to combine the ideal of the scholar and the ideal of the gentleman in educational thought.

Vivekananda, Swami (1863-1902): a religious and social reformer; broadcast the truth of Vedānta in India, Europe and America; gained international attention in 1893 at the Chicago Parliament of Religions; believes

that knowledge resides within the individual himself and he simply discovers himself; considers concentration of mind as the essence of education; believes that by observing strict Brahmacharya all learning can be mastered within a very short time; pleads for opening centres of education for the spread of female education; considers education a necessity for the masses; thinks that education must promote 'Self-reliance', 'Shraddha' and 'Universal Brotherhood'; attaches great importance to well-built bodies; believes that education must give us the 'Mantra' (the faith) 'Arise, awake and stop not till the goal is reached'. His call to the nation was: "O India! Forget not that the lower classes, the ignorant, the poor, the illiterate, the cobbler, the sweeper are thy flesh and blood." He saw the divine in the form of the poor whom he called 'Daridra Nārāyan'. To him 'Education is the manifestation of the perfection already in man'. 'We want that education by which character is formed, strength of mind is increased, the intellect is expanded, and by which one can stand on one's own feet'. His educational ideals are to be found scattered in seven volumes under the title *The Complete Works of Swami Vivekananda* by Advaita Ashrama, Almora.

Vives, Juan Luis (1492-1540): Spanish educator, a humanist who with Erasmus and Budaeus made up the Triumvirate of Letters of that period; one of the most extensive and progressive Catholic writer on education during the 16th century; enjoyed the friendship of Erasmus, came to England in 1522 and came into contact with Sir Thomas More; became a reader in humanities at Oxford through the efforts of the Queen Catherine of Aragon; in 1523 was appointed supervisor of the education of Princess Mary; about the use of the mother tongue he wrote, 'It is the duty of the parent and of the master to take pains that children speak the mother tongue correctly'; believed that 'having acquired our knowledge, we must turn it to usefulness, and employ it for the common good'. Pub. *De Ratione Studii Puerilis* (on a Plan of Studies for Youth) (1523), *De Institutione Feminae Christianae* (on the Instruction of a Christian Woman) (1523), *De Tradendis Disciplinis* (concerning the Teaching of the Arts) (1531) and *De Anima* (concerning the Mind) (1539).

W

Ward, James (1843-1925) : British psychologist; became well known through his book-size article in the ninth edition of the *Encyclopaedia Britannica* in 1885 ; after many attempts was successful to persuade the University of Cambridge in 1891 to give a grant for the purchase of apparatus and a room for the exclusive use of experimental psychology ; was perhaps the first in England to take a stand on orientation in psychology.

Washington, Booker T. (1859-1915) : one of the most influential American educators, a dominant figure in Negro education ; founded Tuskegee Institute in Alabama and remained its head from 1880 to 1915 ; taught the Negroes 'to dignify and glorify common labour, and put brains and skill into the common occupations of life' ; urged them the importance of learning the various industrial skills and acquiring the virtues of diligence, honesty, usefulness and frugality so that they may ensure racial advancement ; emphasized the social and educational significance of a purposeful training.

Watson, John B. (1878-1958) : American psychologist ; presented a systematic exposition of 'Behaviourism' ; was the first to test the earlier notion that babies possess inborn fears of many things and proved that it was not so ; considered fear, rage and lust as bases from which the complex adult emotional structure emerges through maturation and learning ; claimed that, given a healthy normal baby at birth and control of his subsequent conditional environment, he could train the child to become anything regardless of his talents, abilities and race ; published *Psychology as the Behaviourist Views* (1913), *Behaviour : An Introduction to Comparative Psychology* (1914), *The Place of the Conditioned Reflex in Psychology* (1916), and *Psychology from the Standpoint of a Behaviourist* (1919). His work made a tremendous impact on American psychology.

Weber, Ernst (1795-1878) : German psychologist ; taught anatomy and physiology at Leipzig (1817-71) ; made outstanding and lasting contributions to the physiology of the sense organs ; for the first time subjected purely psychological phenomena to experimental manipulation and control and gave precise quantitative definition.

Weiss, Albert P. (1879-1931) : psychologist born in Germany ; pursued his career as a behaviourist ; eliminated all reference to conscious and mental phenomena ; felt that

all behaviour was capable of being reduced to physical-chemical entities ; but also believed that man is not only biological but is also social, in fact a product of 'biosocial' ; outlined a programme of research on child development and learning.

Wertheimer, Max (1880-1943) : the oldest of the three original Gestalt psychologists, leader of the movement, was born in Prague ; as a refugee scholar from Germany came to New York in 1933 and became associated with the New School for Social Research ; published *Productive Thinking* ; took the position that an individual perceives an object as unified wholes and not as collection of individual sensations.

Whitehead, Alfred North (1861-1947) : an outstanding metaphysician ; professor of philosophy at Harvard ; his philosophy of education stressed individuality, exact knowledge, imagination and creative interaction ; believed that learning should not be just filling the mind with facts, but should be an active assimilation of general ideas which could be tested and applied to life, and 'It must never be forgotten that education is not a process of packing articles in a trunk' ; advised 'Do not teach too many subjects' and 'What you teach, teach thoroughly'. His famous works include *Aims of Education* (1929), *Modes of Thought* (1938) and *Science and Philosophy* (1946).

Wilkins, Charles (1749-1836) : a famous orientalist ; entered the services of the East India Company in 1770 ; translated the *Bhagavadgītā*, *Hitopadesha*, *Shakuntalā* ; deciphered Sanskrit inscriptions ; he himself prepared the first Bengali and Persian types.

Willard, Emma Hart (1787-1870) : pioneer in the American movement for the higher education of women ; founded the Tory Female Seminary ; was superintendent of schools at Kennington ; was active in the national revival of common schools ; at 16 she began her career as a teacher. In contrast to other girls' schools, her Tory Female Seminary included 'masculine' subjects like geography, history, mathematics and physiology. The parents protested to her for teaching physiology and acquainting their daughters with human anatomy which might lead to immorality, but she would not change. She trained hundreds of teachers and demanded from them the highest standard of proficiency ; helped Horace Mann and Henry Bernard in their efforts to improve

the standards of teaching profession ; lectured all over the country on behalf of better education for women.

Wilson, Rev. John, D.D. (1804-1875) : ordained missionary of the Scottish Churches in 1828 ; came to Bombay in 1829 ; founded the *Oriental Christian Spectator* (1830) ; established schools for Indian girls ; promoted vernacular education ; his college was eventually named after him ; was Member of Royal Society (1845) and Vice-Chancellor of Bombay University (1868) ; wrote voluminously.

Woodworth, Robert Sessions (1869-1962) : functional psychologist, active for over 70 years as a researcher, teacher and writer ; introduced into functionalism a dynamic psychology ; wanted to develop a 'motivology' as he was primarily concerned with the driving forces that activate the organism ; distinguished between mechanism and drive—the former

being concerned with 'how' a task is performed, the latter with 'why' the task was performed. His position is put forth in *Dynamic Psychology* (1918), *Dynamics of Behaviour* (1958), *Experimental Psychology* (1938, revised 1954) and *Contemporary Schools of Psychology* (1931, revised 1964).

Wundt, Wilhelm (1832-1920) : German psychologist, called the father of experimental psychology ; in 1879 established in Leipzig the first psychological laboratory ; trained the first generation of students by supervising for the Leipzig Ph.D. degree in psychology ; many famous German psychologists studied under Wundt in the 1880's ; argued explicitly for a separate science of psychology ; important publications are : *Grundzüge der Physiologischen Psychologie* (1873-74), *Beiträge* (1858-62), *Logik* (1883), *Ethik* (1886), *System der Philosophie* (1889).

Z

Zakir Husain (1897-1969) : a pioneer in education ; ardent advocate of basic education in India. His contact with Gandhiji in October 1920 inspired him to establish a national Muslim university by the name Jamia Millia Islamia ; studied in Germany and was conferred a Doctorate for his work in economics by the University of Berlin ; became the Vice-Chancellor of Jamia at the young age of 29 ; headed the National Committee on Basic Education in 1937 ; President of the Hindustani Talimi Sangh for many years ; took up the Vice-Chancellorship of the Aligarh Muslim University in 1948 ; served in that capacity for eight years ; served as member of educational and other committees including the University Education Commission 1948-49 ; was Member of Rajya Sabha (1952-56) ; represented India in Unesco and served as a Member of its Executive Board during the year 1956-58 ; was Governor of Bihar (1957-62) ; was elected

Vice-President of the Republic in 1962 ; was awarded the Bharat Ratna for his great services to the nation ; became the President of the Indian Republic on May 1967 and served his country in this capacity till his death on May 3, 1969.

Ziegenbalg : a Protestant Danish missionary ; did considerable educational work in India ; established a printing press in Tamil in 1713 ; opened an institution for training teachers at Tranquebar in 1716 ; opened the charity schools at Madras—one for Portuguese and the other for Tamil children ; died in 1719.

Zwingli, Huldreich (1484-1531) : Swiss Protestant reformer ; broke more thoroughly than Luther with the medieval church, besides his general educational influence like all Reformation leaders he was directly connected with education through his pamphlet on *The Manner of Instruction and Bringing up Boys in a Christian Way* (1524).

GREAT TEACHERS OF ANCIENT INDIA

A

Abhiyakara Gupta, Arya Mahāpandita : hailed from Gauda (Bengal) and was a distinguished teacher at Vikramasila University in the reign of King Rāmapāla. He was an authority on Tantra Cult and wrote 27 books in Sanskrit and translated 7 books in Tibetan. He was known by the title of Arya Mahāpandita. He was an eye-witness of the first Turuksha invasion of Magadha.

Abhipratari Kakaseni : a philosopher who finds mention in Chhandogya Upanishad always engaged in philosophical discussions. He lived with the great teacher Saunaka Kapeya.

Ajatsatru : a king of Kasi famous for his erudition and knowledge in the later Vedic period. In the Brihadāranyaka Upanishad it is told that he patiently listened to the proud Bālaki who pretended to teach the king about *ātman* (self) but miserably failed. Thereupon the king turned into a teacher and instructed the proud Bālaki as to the real nature of the self. He was the contemporary of Janak, the king of Videha.

Aruna Aupavesi Gautama : a famous teacher ; father of the more famous Uddalaka Aruni and contemporary of King Asvapati Kaikeya.

Arya Deva (4th century A.D.) : one of the earliest scholars of Nālandā who hailed from south ; eminent disciple of Nāgarjuna ; visited Mahākosala, Prayāga, Chola and Vaiśālī where he won great fame by defeating the Tirthikas and preaching the true doctrines of Buddha. He was the author of three works in Sanskrit which were introduced to Tibet in translation.

Asanga, Arya : a scholar of Nālandā who wrote 12 works, many of them extant in Chinese and Tibetan translations.

Asuri : an authority on rituals and dogmatics in the first four books of Satapatha Brāhmana. His insistence on truth is noteworthy.

Asvata : the *hota*-priest in the court of King Janaka. On the occasion of the sacrifice of Asva-

medha when the king made an offer of precious gifts to the best read Brāhmin, Yajnavalkya asserted his superiority, whereupon Asvata challenged his superiority by putting questions to him.

Asvapati Kaikeya : a learned king in Chhandogya Upanishad. His was an ideal kingdom where no thief, no miser, no drunkard, no man without an altar in his house, no ignorant person and no adulterer could be found. He was an authority on the doctrine of Vaisvanara Self. Five great learned men led by Uddālaka Aruni came to him to learn the mystery of Vaisvanara Vidyā.

Atidhanavan Saunaka : an authority on Utgithā Vidyā and teacher of Udāra Sandilya in Chhandogya Upanishad. He believed that knowledge of Utgithā brought greatness in one's life.

Atisa Dipamkara : also known as Dipamkara Sri Jñāna was one of the greatest Indian scholars in Vikramasila University. He was born of a royal family in 980 A.D. in Gauda (Bengal) but became a monk at an early age. After mastering Hinayāna, Mahāyāna, Vaiseshika and Tantras he sailed to Suvarnadipa for a further study of twelve years. On his return he was elected as the head of the community of Buddhist monks and was appointed by King Naya Pāla as the head of Vikramasila University. He was called the 'Venerable of Venerables' and was known for his great charity. The king of Tibet earnestly endeavoured to secure the services of this great scholar for the reformation of Buddhism who being moved by the trouble and expenses repeatedly borne by the messengers at last set out for Tibet. Within the 13 years of his stay he ardently worked for the reformation of Tibetan Buddhism, founded the new religion of Lamaism, translated 22 Sanskrit works and, it is said, he wrote about 200 works on Tibetan Buddhism. He died near Lhasa in 1053.

B

Buddhakirti : scholar of Nālandā, proficient in Tibetan and Tāntrika Buddhism. He helped the great scholar Mahāpandita Abhayakara-

gupta when he came to Nālandā by translating a Sanskrit book in Tibetan.

C

Chandragomin (8th century A.D.) : one of the best products of Nālandā ; author of as many as sixty books in Sanskrit on Buddhism which have been translated into Tibetan, wrote a commentary on Pāṇini. He was the contemporary of Harsha's son Sila.

Chitra Gangyayani : one of the most learned

kings mentioned in the Kausitaki Upanishad. His question regarding future life put to Svetaaketu could not be answered by Svetaaketu or by his famous father Uddalaka Aruni, whereupon both father and son finding their knowledge incomplete went to Chitra for further instruction.

D

Dharmapala : President or Chancellor of Nālandā ; his many Buddhist Sanskrit works were translated into Tibetan. Born in Kāñchīpura, he was a student of Nālandā of which he became the President or Chancellor, but had already retired in favour of Shīlabhadra at the time of Hiuen Tsang's visit to India. He was a famous logician and grammarian. He wrote in Sanskrit a commentary on Chand-

ragomin's grammar and four Buddhist works. It is said in favour of his learning, logic and ability of disputation that once in a seven day's discussion he silenced 100 Hinayāna monks in the Visoka monastery.

Dharmaratna : an Indian scholar who went to China in the 3rd century A.D., translated Sanskrit texts in Chinese.

G

Gargi Vachaknavi : a lady of great scholarship and one of the most eminent philosophers of her time. She was the contemporary of famous Yajñavalkya. At the court of Janaka on the occasion of his Asvamedha, Gargi questioned the superior knowledge of Yajñavalkya whereupon a long philosophical discussion followed. At the end Gārgi admitted Yajñavalkya's superiority and announced to the congress : 'Never shall anyone, defeat him in any argu-

ment concerning Brahma'.

Gotama Rahugana : family priest and preceptor of King Mathava Videgha, first mentioned in Rig Veda. He is considered as a bearer of Vedic civilization during the eastward migration of the Aryans.

Gṇavarman (5th century A.D.) : famous scholar who spread Buddhism in Java : went to China and was received personally by the Chinese emperor who became his disciple.

J

Janaka : king of Videha whose court was practically the centre of Vedic culture and civilization. He was a very learned man and honoured

the scholarship of other learned men. He was once the teacher of Yajñavalkya whose knowledge on all aspects of Brahma so

overwhelmed him that he accepted Yajnavalkya as his teacher. His other teachers were Jitavān, Udanka, Vidagdha, Barku Varshna, Satyakāma Jabāla, Gardabhivipita. His name is mentioned in several works. Several references show that discussion was the most convenient method adopted by the king for instruction and dissemination of knowledge.

Jetari, Acharya : student of Vikramasila University which he later served as a professor in the early part of the 10th century. He wrote about 100 books including Tantras and Sutras. He was the teacher of the distinguished scholars—Ratnākar Sānti and Dipamkara Atisa.

Jitavān Salini : one of the teachers of King Janaka who taught him the doctrine that Vāk (speech) was the Brahma. His name occurs

in the Brihadāranyaka Upanishad.

Jnanapada, Acharya Buddha : was first appointed as the royal priest of King Dharmapāla who later made him the high-priest or President of Vikramasila University. He was the founder of a new cult of Vijrāchārya of which Vikramasila was the only centre. He wrote several books on Tantra, only 12 of which now remain in Tibetan translation.

Jnana Sri Mitra, Mahapandita : hailed from Gauda (Bengal) and served as the *dhvārapandita* (gate-keeper) of the second central gate of Vikramasila University during the reign of Chanaka. He wrote several books in Sanskrit including three on logic. He belonged to Srāvaka school which he later changed to Mahāyana.

K

Kamalasila (8th century A.D.) : a professor of Tantra at Nālandā. His two great teachers—Santa Rakshita and Padmasambhava—who were engaged in the propagation of Buddhism in Tibet once became involved in a religious controversy with a great Chinese scholar. Being unable to defeat the opponent they requested the king to commission the services of their disciple Kamalasila who whereupon came to Tibet and in the presence of an august assembly thoroughly vanquished his opponent in a scholarly debate who consequently had to leave Tibet. He was the author of five works including two on logic.

Kasyapa : an Indian monk and scholar who was

invited by the Chinese envoy sent by the Chinese emperor Ming-ti (A.D. 58-75) to visit China; a pioneer who opened up a vast field of work in China; translated many Sanskrit works in Chinese.

Kauravyayani-putra : a teacher and author of the doctrine of Akāśa or ether in Brihadāranyaka Upanishad. He sets out the explanation of the sacred syllable 'Om' as Ether-Brahma.

Kumarajiva (5th century A.D.) : was invited by a Chinese emperor to propagate Buddhism in China; translated more than one hundred Sanskrit works into Chinese; known as the teacher of the famous Chinese pilgrim Fa-Hien.

M

Mahesa Thakkura : a scholar of Mithilā University and guru of Raghunandanadāsa Rāya, a great logician. He was the founder of Darbhanga Rāj family.

Mahidasa Aitareya : a great philosopher who is said to have compiled the Aitareya Brāhmaṇa and Aranyaka. He knew the Puruṣa Vidyā and as a result of his special spiritual practices he lived 116 years.

Maitreyi : the learned wife of Yajnavalkya. When Yajnavalkya was about to leave the life of a householder before retiring to a hermitage, he wanted to divide his huge property

between his two wives, Maitreyi and Katyayani. Maitreyi asked 'My lord, if I possessed this whole earth with all its wealth, should I be immortal?' 'No' was the reply, whereupon Maitreyi earnestly pleaded, "Of what use to me are things that will not bring immortality? Give me rather your knowledge, my lord." And her husband imparted supreme knowledge to her.

Milanda Panha (2nd century B.C.) : illustrates the principal features of the system of both Brāhmanical and Buddhist education as they prevailed in its times in India.

P

Padma Sambhava (8th century A.D.): a professor of Nālandā who hailed from the country near Gazni in the North-Western Frontier. At the invitation of the king he went to Tibet in 747 A.D. and introduced the Tāntrika element in Tibetan Buddhism as he was of the Yogāchāra School of Tāntrika cult. His book was introduced to Tibet in translation.

Patanchala Kapya : a famous teacher of Madra and authority on sacrificial lore mentioned in Brihadāranyaka Upanishad. Famous teachers like Yajñavalkya and Uddālaka went to him as itinerant students to study scriptures.

Pippalada : a great sage in the Prasna Upanishad who was approached by six disciples seeking for the Highest Brāhman with fuel in their hands. These disciples were Sukesa, Satya-

kāma, Saurayayanin, Kausalyā, Kabandhi and Bhārgava.

Prajnakaramati, Sri Mahapandita : one of the *dvāra-panditas* (gate-keepers) of the University of Vikramasila during the reign of Chanaka, wrote several works, two of them in Tibetan.

Pravahana Jaivali : one of the most learned Ksattriya kings whose instruction was sought by noted Brāhman students, as he was famous for possessing a special knowledge of Udigitha which others did not know before. He had an assembly or academy of learned scholars. He himself was an authority on questions connected with the mystery of life and death, questions which could not be answered by Svetaketu and his father Uddālaka Aruni, whereupon they submitted to the king as students.

R

Raikva : a great philosopher who lived in the lonely forest possessing a cart with yoked oxen. His name finds mention in the Chhandogya Upanishad. The King Janasruti Pautrāyana, famous for his liberality, once approached him for instruction with a present of 600 cows, a necklace and a carriage with mules but Raikva did not accept him as a student. The king did not lose heart and the next time Raikva relented and taught him Samvargah Vidyā.

Ratnakara Santi, Mahacharya : received his ordination in Sarvastivada school at Odāntapura University before joining Vikramasila University where he served as a *dvāra-pandita* (gate-keeper) of the East Gate during the reign of Chanaka (955-983 A.D.) where he studied Tantra and Sutra under his distinguished teacher Achārya Jetari. Later he became the *dvāra-pandita* (gate-keeper) of the East Gate

of the University during the reign of Chanaka. At the invitation of the king he went to Ceylon where he spread the Buddhist doctrine.

Ratnakirti, Mahapandita : wrote several books in Sanskrit and some of them he translated into Tibetan. He helped to introduce to Tibet the true spirit of Indian Buddhism. He was the teacher of Ratnākara Santi at Vikramasila University.

Ratnavajra, Mahapandita : hailed from Kashmir and served as the *dvāra-pandita* (gate-keeper) of the first central gate of Vikramasila University during the reign of Chanaka. He returned to Kashmir after some time where he defeated many Tirthikas in discussion. Later he visited Tibet where he learnt Tibetan to translate several books into that language and to spread Buddhism.

S

Sakayana : teacher of King Brahadratha in Maitrayani Upanishad. He defined Brahma as pure, holy, formless, calm, omnipresent, endless, imperishable, static, perpetual, motionless, endowed with vital energy, independent and beyond speech. He said that the Supreme

Soul resided in the body as consciousness and supreme knowledge of self could be acquired by performing the duties prescribed for each āshrama and by the practice of *tapas*.

Santarakshita (8th century A.D.) : a great scholar of Nālandā who became the chancellor

of the university. At the invitation of the king of Tibet he went to that country and became the pioneer in the propagation of Buddhism. He inspired the king to construct the first Buddhist Monastery in Tibet in 749 A.D. on the model of Odāntapuri Vihāra of Magadha. After 13 years of arduous missionary work in Tibet he died in 762 A.D.

Satyakama Jabala : a famous teacher mentioned in Chhandogya Upanishad. He was famous for his truthfulness which helped Gautama Haridrumata to determine that he was Brāhmaṇa by birth and to accept him as his student. The first duty prescribed for him was to tend 400 lean cows of his guru. He resolved not to return before the number of cows grew to a thousand and thus spent a number of years in the forest tending the cows and meanwhile, acquiring a knowledge of Shodashakalāvidyā. When he did return with a thousand cows and self-acquired knowledge his guru was so much moved with his determination, dutifulness and truth that he taught him all that he could. Of his many students, King Janaka was one whom he taught the doctrine that *manas* (mind) is the Brahma.

Silabhadra (7th century A.D.) : a great scholar at Nālandā. He was the son of the king of Samatata, lower Bengal, but renounced the world and travelled through India in search of the wise and became the disciple of Dharmapāla at Nālandā where he utterly defeated a proud scholar from the South who came to challenge the learning of his guru for which the king

rewarded him with the gift of a city which he gave over to a monastery. He rose to become the President or Chancellor of Nālandā at the time of Hiuen Tsang who studied under him and recorded great admiration for his scholarship as he alone understood all the Sūtras and Shāstras. Out of the many books he wrote, only one on logic has come down to us.

Sthiramati (6th century A.D.) : a profound scholar of Nālandā. He along with another scholar Gunamati is known as a founder of a Vihāra at Valabhi. He was an authority in the Kalapa system of Sanskrit grammar. He was the author of nine works in Sanskrit and showed his mastery of Tibetan language by translating seven books into that language.

Svetaketu : a famous teacher, grandson of Aruna and son of Uddalaka. After studying all the Vedas for 12 years he returned home conceited with knowledge. His father exposed the deficiency of his knowledge by putting him several questions which he could not answer, whereupon his father himself undertook the further education of his son at home. Again when Svetaketu failed to answer the questions of King Pravahana Jaivali he returned home to report to his father the imperfect nature of the instruction he had received. This made both father and son to go to the king for further instruction. Svetaketu believed that education could never be complete and declared that a householder who desired to study more should dwell two months every year in the house of his teacher.

T

Taponitya Pauru-sishti : a teacher in the Taittiriya Upanishad who held that Tapas was the only means of acquiring supreme knowledge. The superiority of Tapas or penance over the learning of Vedas was asserted. 'Taponitya' is one who is always absorbed in Tapas.

Tathagata Rakshita, Mahapandita : hailed from Orissa and was a professor of Tantra in the Vikramasila University where he wrote 9 books in Sanskrit and translated 11 books into Tibetan.

U

Udanka Saulbayana : one of the teachers of King Janaka of Videha in Brihadāranyaka. He taught the king that *prāna* was Brahma, for he said : 'What can a person have who does not live ?'

Uddalaka Aruni : a great scholar from Kurupanchal and recognized authority on rituals, philosophy and Brāhmaṇa doctrine. He belonged to one of the most cultured families of the period, his father was the famous teacher

Aruna Aupavesi Gautama and his son was Svetaketu. He learned at the feet of his father and Patanchala Kapya of Madrā. He was remarkable both for his erudition and humility. When five Brāhmanas came to him to learn Vaisvanara Vidyā, diffident as to the fullness of his knowledge he led them to King Aswapati Kaikeya. When he and his son could not

answer a question put by Chitra Gangyāyani, they both went to Chitra as pupils. He offered a gold coin to Svaidāyana Saunaka whose questions he could not answer and therefore desired to become his pupil. The famous Yajnavalkya was his pupil who defeated him in a philosophical congress.

V

Vagisvara Kirti, Mahapandita : hailed from Banaras and served as the dwāra-pandita (gate-keeper) of the West Gate of Vikramasila University during the reign of Chanaka. He was the worshipper of Tara Devi and wrote a Sanskrit book on a Tantra which was introduced to Tibet by Dipāmkara Atisa.

Vairochana Rakshita, Mahacharya (728-864 A.D.) : pupil of Padmasambhava of Tibetan fame; joined the University of Vikramasila, wrote several Buddhist books in Sanskrit and translated Tāntrika works into Tibetan. He was honoured by the title of Mahāpandita or

Mahāchārya and later joined Padmasambhava in Tibet.

Vasubandhu : a scholar of Nālandā and elder brother of another scholar Asanga. He followed the Yogāchāra School of Mahāyana and wrote a large number of books including a few on logic. In the reign of Chandragupta Vikramāditya his guru Monoratha, the champion of Buddhism, was defeated by an opponent championing the cause of Hinduism, but in the next reign of Samudragupta Vasubandhu won the victory for Buddhism and his guru.

Y

Yajnavalkya (about 600 B.C.) : the most learned teacher of his times, unparalleled in his knowledge of Brāhman. In the vast assembly or philosophical congress of scholars called by King Janaka in connection with Aswamedha sacrifice, Yajnavalkya asserted and maintained his superiority against all the renowned scholars of the age like Asvala, Artabhāga, Gārgi, Uddalaka and Vidagdha. In the end he asked if any one or all of them would desire to question him or would desire him to question them

but no one did dare to take up the challenge. He imparted the sacred knowledge of Brāhman to King Janaka, his former teacher, who was so much moved that he wanted to offer his entire kingdom along with himself to the great scholar. He was recognized as an authority on Mitravinda sacrifice and rituals. He had his own views on some matters like his protest against the priest's demand of sharing the benefit of the sacrifice.

WHO'S WHO IN INDIAN EDUCATION

A

Adaval, S.B. (b. 1919): Head of the Education Department, Allahabad University since 1955. M. Ed. & D. Phil. (Allahabad), A.I.E. (London). Lecturer in Education, Allahabad University 1949-55; Member Board of Studies in various universities; visited U.K., France, Switzerland and U.S.A. Pub. *Bhartiya Shiksha Siddhanta, Samanya Manovigyan, Shiksha Darshan, Teacher Education in U.K.* Add. 3 Bank Road, Allahabad.

Aggarwal, Jagdish Chand (b. 1928): Edn. Officer, Directorate of Education, Delhi, M.A. (History & Eco.), M. Ed., Dip. in Educational and Vocational Guidance & Counselling, Cert. in Edn. Administration, Birmingham (U.K.). Exp. Lecturer in Education, Dayanand College, Hissar; Plan Evaluation Officer, Directorate of Edn. Delhi; Deputy Edn. Officer; Lecturer, State Institute of Edn. Delhi; Principal, Govt. Schools; Visited U.K. and other European countries. Pub. *Educational Vocational Guidance and Counselling, Basic School Administration, Thoughts of Gandhiji on Education, Progress of Education in Free India, Educational Administration & School Organization and Supervision, Major Recommendations of Education Commission 1964-66, Introduction to World Education, Educational Research—An Introduction, Thoughts on Education, Recent Developments in Indian Education, Kothari Shiksha Ayog, Swatantra Bharat Me Shiksha ka Vikas, Seven Indian Educationists, Educational Documents in India, Democratic Principal & Educational Supervisor.*

Agrawal, Shyam Sunder Lal (b. 1933): Principal, Vaish College, Rohtak. M.A., M. Ed. Lecturer in Education 1959-60; Asstt. Prof. Education, 1960-62. Add. Chawal Walya, Jahangirabad, Distt. Bulandshahar (U.P.).

Ahlwalia, S.L. (b. 1925): Head of the Deptt. of Teaching Aids, N.C.E.R.T., M.A. in Audio-Visual Education, Ohio State University, M.A. (Punjab), B.T. Pub. *Foundations of Social Studies, Ham Aur Hamari Duniya and An Objective Workbook of World Geography.*

Aiyya, S.V.C.: Director of the NCERT, New Delhi; received his education at Bombay and Cambridge; a linguist, knows many Indian and foreign languages; has actively participated in University administration, formulation of courses for schools and colleges; conduct of school and college examinations, etc.; has served on several committees of the Central and State Governments; served on the Executive Council of the Poona University; was Dean of the Faculties in Bombay and Gujarat Universities and the Indian Institute of Science; Professor and Head of the Department of Electrical Communications in the Indian Institute of Science, Bangalore.

Ajat Satru: see under 'Great Teachers of Ancient India'.

Altekar, Anant Sada Shiv (b. 1898): Historian, scholar and educationist; Director K. P. Jayaswal Research Institute, Patna. M.A., LL. B., D. Litt. President All India Oriental Conference 1957. Pub. *Prachina Bharatiya Shiksha Paddhati* 1935, *Education in Ancient India*. Add. Ranigarhar Quarters, Patna.

Amin, Mandakini Manubhai (b. 1924): Reader, Language Learning Centre of Advanced Study in Education, M.S. Univ. Baroda; M.A., B.T., M.D.C. (U.S.A.). Exp. 7 years of High School teaching, 12 years of teaching in university; Fullbright Scholar, U.S.A. 1952-54; U.S.A. Government Grantee in Teacher Education Programme 1964-65; visited U.S.A., U.K. and other countries. Add. 21, Alkapuri, Baroda.

Annasaheb B.M.: Principal Azad College of Education, Satara. B.A. (Hons.), B.T., M.Ed. Exp. 26 years; Founder of the Rayat Shikshan Sanstha, Satara. Pub. Text-books for school students.

Annie Besant: see under 'World Educators and Educationists'.

Apararka: see under 'World Educators and Educationists'.

Arul Joseph S.J. (Rev.) (b. 1922): Principal St. Xavier's Teachers Training College, Palayam-

- kottai since 1962. M.A., L. Ph. (Gregorian Rome) M. Ed. Education (Madras). Exp. Headmaster St. Xavier's High School, Palayamkottai 4 years; Member of Senate, Academic Council, Standing Committee, Board of Studies in Teaching, and Board of Examiners; President of the Faculty of Teaching, Madurai University. Managing Editor of the Tri-Annual Journal 'The School Teacher'.
- Aruna Anpavesi Gautama**: see under 'Great Teachers of Ancient India'.
- Asanga, Arya**: see under 'Great Teachers of Ancient India'.
- Asa Ram (b. 1921)**: Principal, Chotu Ram College of Education, Rohtak. M.A. (Eco. & Persian), LL. B., B.T. & B. Ed., Visharad. Exp. More than 20 years of teaching experience; ex-member Board of Studies, Punjab.
- Asthana, Ishwar Sharan**: Head of the Deptt. of Education, Kisan Degree College, Bahraich (U.P.). M.A. Philosophy, M. Ed. 8 years' experience of teaching B. Ed. and B.A. (Edn.) classes. Pub. *Rashtra Purush Swami Vivekanand*. Add. Barauni Mohalla, P.O. Sandila, Distt. Hardoi (U.P.).
- Asuri**: see under 'Great Teachers of Ancient India'.
- Asvala**: see under 'Great Teachers of Ancient India'.
- Asvapati Kaikeya**: see under 'Great Teachers of Ancient India'.
- Atidhanavan Saunaka**: see under 'Great Teachers of Ancient India'.
- Atisa, Dipamkara**: see under 'Great Teachers of Ancient India'.
- Attar, Abdulgani Dadamiya (b. 1907)**: Principal Sadguru Gadgc Maharaj College, Karad, since 1961. B.A., B.T., M.A. (Bombay), M.A. (Birmingham University 1957). Exp. Headmaster Secondary School, 1948-51; Principal Training College, 1951-55; Lecturer and Professor, University College 1956-61. Pub. thesis on *Juvenile Delinquency—Comparative Study*. Add.: P.O. Kokrud, Distt. Sangli (Maharashtra).
- Aurobindo Sri**: see under 'World Educators and Educationists'.
- Avinashilingam Chettiar, T. S. (b. 1903)**: Founder-Director Sri Ramakrishna Mission Vidyālaya, Distt. Coimbatore. B.A., B.L. Exp. took a leading part in the national movement for Independence; Minister of Education, Madras State 1946-49; member of many educational and social organizations of All India fame; served on the Central Advisory Board of Education and the All-India Council of Technical Education; founded Sri Avinashilingam Education Trust in 1951; also founded the Tamil Academy which has produced the Encyclopaedia, in Tamil in 10 volumes. Pub. (in Tamil) *Nankanda Mahatma*; *Thirukethara yathiorai*; (in English) *Understanding Basic Education, Gandhiji's Experiments in Education, Utilising Festivals in Education, Educational Philosophy of Swami Vivekananda, Vivekananda and Gandhiji*; Edited *World Teachers on Education, Education by Swami Vivekananda, Education by Mahatma Gandhi*.
- Azad, Abul Kalam**: see under 'World Educators and Educationists'.
- Azhicode, Sukumar (b. 1916)**: Principal, S.N.M. Training College, Moothakunnam since 1962. M.A., B.T. Exp. Lecturer Malayalam and Sanskrit St. Aloysius College Mangalore and St. Joseph's College Calicut 1953-56 and 1956-62. Pub. includes *The Sita Kavya of Asan*, *'Progressive Literature'*, *'The Path of the Mahatma'*. Add.: P.O. Azhicode, Distt. Cannamora (Kerala).

B

- Basu, Anath Nath**: formerly Principal, Vinaya Bhawan, Shantiniketan, West Bengal. M.A. (London), M. Ed. (Winxetka U.S.A.). Exp. taught at Visva-Bharti, Shantiniketan; Principal, Central Institute of Education, Dean, Faculty of Education, University of Delhi 1949-57; Principal, Vinaya Bhawan after retirement, represented Govt. of India at the 11th International Conference on Education in Geneva 1947; was editor, Indian Journal of Education. Pub. *Education in Modern India: A Review; University Education in India: Past and Present*.
- Bajwa Balkar Singh**: Principal G.H.G. Khalsa College of Education Gurusar Sadhar, Distt. Ludhiana (Punjab). M.A. (Eco. and Pol. Sc.) M. Ed. Teaching experience 7 years.
- Balya Suraj Narain**: Principal Shri Mahesh Teachers College, Jodhpur. M.A., B. Ed. Teaching experience 22 years.
- Banerjee, Gooro Dass**: see under 'World Educators and Educationists'.

Bapat, Balavant Venkatesh : Principal Tilak College of Education, Poona. B.A., M.Sc., M. Ed., A.I. Ed. (London). Experience over 25 years ; visited U.S.A. in 1955 under the Teacher Education Programme, and in 1958 for training in evaluation.

Baranwal, Raghunath Prasad (b. 1927) : Lecturer Deptt. of Education Gorakhpur Univ. since 1957. M.A., M. Ed. Exp. Lecturer King George Inter College Deoria 1951-54 ; Lecturer Teachers Training College Gorakhpur 1954-57. Pub. *Hindi and its Methodology, Gītā Vimarsh, Secondary Schools in India and Their Problems*. Add. 61 Baranwal Sadan, Mohaddipu, Gorakhpur (U.P.).

Barrow, A.E.T. (b. 1908) : educationist, Member Lok Sabha. B.A., H. Dip. Ed. (Dublin), T.D. Edn. Chelmsford Training College, Murree Hills, and University of Dublin. Exp. Former Principal, St. Mark's School, Jhansi ; Former Secretary, Inter-State Board for Anglo-Indian Education ; Secretary, Council for the Indian School Certificate Examination ; Member All India Council for Elementary Education 1959-63, Emotional Integration Committee 1961-62, Panel on education of the Planning Commission, and various other committees. Pub. *Articles on School Education*. Add. 13-A Ferozeshah Road, New Delhi.

Basaviah, K. : General Secretary, Mysore State Adult Education Council, Krishnamurtipuram, Mysore. B. Sc., B.T., A.C. Dip. Edn. (London) M.A. (Lond.). Exp. Headmaster of the Marimallappa's Practising High School attached to the Teachers College, University of Mysore ; District Education Officer ; Deputy Director of Public Instruction ; Principal Teachers' College, Mysore ; member of many educational associations. Author of several school text-books ; co-author of *Gandhi-Tilak*. Add. K. Basaviah, 'Gnanamrutha', Kalidasa Road, Vanivilas Mohalla, Mysore.

Bhakt Darshan (b. 1912) : Minister of State in Ministry of Education and Youth Services, Govt. of India since Feb. 1969 ; educated at D.A.V. College, Dehradun, Visva-Bharati, Santiniketan and Allahabad University. Exp. Founder-editor *Karma-Bhumi* ; Member, Parliamentary Committee for Adopting Hindi Equivalents ; Member Lok Sabha since 1952 ; Deputy Minister in Ministry of Education, Government of India 1963-67. Add. Village Jainrikhal, P. O. Lansdowne, Garhwal District, U.P.

Bhandarkar, Sitaram Shyamrao (b. 1903) : Vice Chancellor, Jivaji University, Gwalior since 1964, B.A. (Hons.), Bombay and London. Exp.

entered Bombay Educational Service, Class I, in 1930 ; Professor of English 1928-48 ; Principal 1947-49 ; Chairman, Secondary School Leaving Examination Board, Bombay, 1950 ; Director of Education Bombay State 1954-58 ; Educational Advisor to Nepal Government, 1958-64 ; member Advisory Committee of University Grants Commission. Pub. edited *Review of Education in Bombay State, 1855-1955*. Add. 86, Sneh Sadan, Colaba Road, Bombay.

Bhatia, Hans Raj : Retired after forty years of service during which worked as professor, head of the philosophy department, education officer in the Central Government, principal of a public school, principal of post graduate colleges in Punjab, Rajasthan, Delhi and West Bengal. Pub. *Craft in Education, What Basic Education Means, Teaching of English Spelling, A New Deal in Secondary Education, Elements of Educational Psychology, General Psychology, Abnormal Psychology, Elements of Social Psychology*. Add. 286, Adarsh Nagar, Jaipur.

Bhatt, G.P. (b. 1918) : Principal, Teachers College Aliabada since 1963 ; M. Ed., Ph. D. (Baroda) Assistant Teacher and Headmaster, Home School Bhavnagar 1941-48, and 1948-55, visited U.S.A. Pub. *Ganitmani Adhyapan, Job-Analysis*. Add. 90 Vidyanagar 'Kashyap', Bhavnagar (Gujarat).

Bhattacharya, Suruchi : Principal, Institute of Education (Post-Graduate) for Women, Chandernagore, Distt. Hooghly, West Bengal. M.A. (Cal.) B.T. (Cal.), M.A. Education (Lond.), Diploma in Montessori Methods of Education (London), Experience about 16 years.

Bhave, Vinoba (Acharya) : Born in 1894 in a village in Maharashtra ; being greatly devoted to the ideals set by Swami Shankaracharya and Samarth Guru Ram Dass decided to dedicate his life to the service of the people ; spent some years with Gandhiji in his Sabarmati Ashram, exponent of 'Sarvodaya' and 'Bhoodan'. The educational philosophy of basic education is basically on 'Sarvodaya' principles. He pleads for keeping education free from the fetters of pre-determined courses and curriculum. He believes that education should enable students to acquire self-sufficiency within the minimum possible time ; education should bring about a synthesis of learning and doing ; education should enable an individual to have maximum contact with nature ; Bhaveji thinks that nothing except good and efficient teachers are required for Basic Education.

Bir Bahadur (b. 1907) : Lecturer in Education, Aligarh Univ. since 1952. B. Sc., M.A., Dip. Ed. and M. Ed. Exp. Principal St. Crispinus' School, Gurgaon 1945-50; Research Fellow C.I.E. Delhi 1950-52; visited U.K. Pub. *Idea of Education for Common People of India*. Add. Care Miss M.S. Bakshy, the Happy School, Gurdaspur, Punjab.

Birua, Kolai (b. 1933) : Member Lok Sabha; Headmaster Bharbharia High School, Bharbharia. Add. Village Demkapada, P.O. Gitilpi, P.S. Manjhan, Distt. Singhbhum, Bihar.

Broucke, Sr. Lutgarde : Principal St. Ignatius' Training College, Palayamkottai, Tirunelveli, Tamilnadu. M.A., B.T. Exp. 8 years as lecturer, 3 years as Principal.

Buch, Madhusudan Bhagvanlal : Prof. and Head, Centre of Advanced Study in Education, M.S. University of Baroda, B.Sc., M.Ed., Ph.D. 1960. Exp. Teacher in a secondary school 1941-55; Research fellow in M.S. University 1955-57; Lecturer and Co-ordinator, M. S. University 1957-60; Vice-Principal, Secondary Teachers' Training College, Sardar Patel University, 1960-62; worked in NCERT in various positions—Professor and Head of Departments 1962-69. Pub. (editor) *Readings in Inservice Education*; (co-editor) *Readings in Inspection and Supervision*; *Baroda Studies in Mental Measurement Series* (24 Achievement Tests).

Buddhakirti : see under 'Great Teachers of Ancient India'.

C

Chagla, Mahomedali Currim (b. 1900) : Formerly Education Minister; Vice Chancellor of the Bombay University for a few years; was the youngest Chief Justice in independent India; Chairman of the Legal Commission in 1948; Governor of Bombay, 1956; Indian Ambassador to U.S.A. 1958-61; High Commissioner in U.K. and Ambassador to Ireland 1962 to 1963; joined the Indian Cabinet as Education Minister in 1963; leader of the Indian delegation to the Commonwealth Education Conference, Ottawa, 1964; appointed the Indian Education Commission 1964. Pub. *The Indian Constitution* 1929, *Law, Liberty and Life* 1950, *The Individual and the State* 1961, *Education and the Nation* 1966.

Chakrabarty, Probodh Ram (b. 1916) : Principal Vinaya-Bhavan, Visva-Bharati, Santiniketan, West Bengal. M.A., B.T., Ph.D. Exp. 15 years as assistant teacher; 10 years as lecturer, 5 years as Reader in Education. Pub. *History of Bengali Literature, Bengali Methods, Happy Readers*.

Chandragooni : see under 'Great Teachers of Ancient India'.

Chari Ahalya (Miss) : Principal, Regional College of Education, Mysore. Exp. working in the field of teacher education since 1953; areas of specialisation include Curriculum Development and the Teaching of English; served as Curriculum Adviser with the Department of Curriculum, Methods and Text-books of the National Council of Educational Research and

Training, and directed the Council's Reading Project for the development of instructional materials in the mother tongue.

Chaturvedi Sitaram : Comptroller, Children's University, Varanasi since 1968. M.A. (Hindi, Sanskrit, Pali, Ancient Indian History and Culture), B.T., LL.B., Sahityacharya. Exp. Assistant Professor Teachers Training College, Banaras Hindu University; Head of the Department of Hindi and Pali, Bharatiya Vidya Bhawan, Bombay and Post Graduate Teacher of Pali, University of Bombay 1946-48; Principal Satish Chandra Degree College, Ballia 1948-50, Examination Secretary, Hindi Sahitya Sammelan, Prayag 1950-57, Principal Town Degree College, Ballia, 1957-68. Pub. Many books on education in Hindi. Add. 63/43, North Victoria Park, Varanasi.

Chaubey S.P. (b. 1919) : Department of Education Lucknow University; M.A., M. Ed., (Alld.) D. Ed. (Indiana, U.S.A.), D. Litt. (Lucknow); Recipient of the G.J. Watmull Memorial Award in Education; visited U.S.A., Europe and Egypt. Pub. Many books on education.

Chaudhary Ramkhalavan (b. 1921) : M.A., M.Ed. Pub. *Shikshan Vidhiyon ki Ruprekha* (1954), *Shiksha ke Adhar-Stambha* (1957), (tr.) *Bharat aur Uttar-Pradesh Men Prajatantrik Madhyamik Shiksha ki Aitihasik Bhumnika* (1958). Add. Kachhabagh, Saadatganj, Lucknow.

Chandhury, D.C. (b. 1935) : Reader and Head, B.Ed. Section, Khalikote College, Berhampur

(Ganjam) Orissa. B.A., M.Ed. 12 years' teaching experience. Pub. *Sikhiya Manovigyan* (Oriya), *Sikhiyadana Prauli* (Oriya), *Vidyalyaya Sangathana* (Oriya), *Current Problems in Indian Education* (English).

Chaudhuri, Saurish Chandra : Reader, Department of Pre-primary and Primary Education, NCERT, New Delhi. M.A., M.Ed. Exp. Lecturer in a Post-Graduate Teacher Training Institution for 14 years ; Audio-visual officer for 6 years ; Research worker for 7 years in NCERT. Pub. *Kala Pravesh*, *Krisli* and *Samanya Vigyan*, *Navin Samanya Vigyan*, *Concept of Work Experience*. Add. 61, New Berana, Allahabad.

Chaurasia, G. : Principal, Regional College of Education, Bhopal, since 1967. M.A. (Eng.), M.A. (Edn.), LL.B., Director of Edn. (Columbia). Exp. started as lecturer of English ; Prof. of Education Prantiya Shikshan Mahavidyalaya, Jabalpur 1952-54 ; Dy. Director of Education 1954-57 ; Principal Govt. Post-Graduate Basic Training College 1957-62 ; Deputy Director D.E.P.S.E. 1962-63 ; Principal, Regional College of Education, Mysore, 1963-65 ; Officer on

Special Duty NCERT 1965-67. Pub. Several books on Teacher Education, Secondary Education and Current Problems of Indian Education. Chitra Gangayani : see under 'World Educators and Educationists'.

Chitlibabu, Saidapet Venugopal (b. 1920) : Director of School Education, Director of Libraries and Commissioner for Government Examinations, Madras. Edn. M.A. (History), B.T. Exp. Lecturer in History and Politics in Pachayappa's College, Madras 1942-46 ; joined Madras Educational Service as Lecturer in History in 1947 ; became Principal of a Government Training College in 1955 ; Divisional Inspector of Schools in 1959 ; Deputy Director of Public Instruction in 1962 and Joint Director of Secondary Education in 1965 ; participated in many educational conferences at the national and international level ; visited U.S.A. (under a Teacher Development Grant 1966-67), Sweden, Norway, Denmark, Netherlands and U.K. Pub. a number of articles on problems of education. Add. Old College Compound, Cathedral Post, Madras-6.

D

Danasila, Acharya : see under 'World Educators and Educationists'.

Dandekar, Ramchandra Narayan (b. 1909) : A noted Sanskrit scholar ; was awarded the Padma Bhushan in 1962 ; one of the co-editors of the *Critical Edition of the Mahabharata* ; Honorary Secretary of the Bhandarkar Oriental Research Institute, Poona ; Director of the Centre of Advanced Study in Sanskrit.

Das, Radha Charan (b. 1925) : Principal, Regional College of Education Bhubaneswar, B.Sc. (Hons.), M.S. in Education and Ph.D. Cornell University. Exp. lecturer in Physics, Ravenshaw College, Cuttack, 1949-54 ; lecturer in Education Radhanath Training College Cuttack, 1954-57 ; Reader in Education 1957-63 ; special interest in educational measurement and educational administration ; Pub. Ph.D. Thesis. *Construction and Standardization of a Battery of Educational Tests for Middle Schools and Study of Their Factorial Content*.

Das, Ram Dhani (b. 1925) : Member, Lok Sabha ; Asstt. Teacher. Poonadih H. E. School Patna, 1948. Add. Road No. 1, Rajendra Nagar, Patna, Bihar.

Dave, R.H. : Head of the Department of Text-books NCERT, Delhi ; M.Ed., Ph.D. (Chicago). Exp. about 20 years : in school, college, All India Council for Secondary Education, Directorate of Extension Programme for Secondary Education and the NCERT. Pub. *New Methods of Teaching School Subjects* (2 Vols.), *Teaching of Science*, *Teaching of Mathematics*, *A Group Test of Reasoning in Gujarati*, *Evaluation in General Science*, *Asian Study on Curriculum Development*, *Research Design and Questionnaires*, *Specimen Unit Tests in Science and Mathematics* ; has written more than 50 articles on educational and allied subjects which have appeared in various journals and other educational literature ; has worked as the head of the team of writers of text-books, work-books and teachers' hand-books ; working on the Editorial Board of several educational journals including *Rajasthan Board Journal of Education*, *Social Studies Teacher*, *Examiner*, *Indian Educational Review* and *NIE Journal*.

Dawood, A.R. (b. 1903) : formerly Director of Extension Programmes on Secondary Education (DEPSE) 1955-59. Exp. Lecturer on

Current Topics and Head of the Night School in the Nagpada Neighbourhood House, Bombay 1931-36; Principal, Ismail Begmuhammad High School, Bombay 1936-55; Director, DEPOSE 1955-59; General Secretary, Anjuman-i-Islam, Bombay since 1959; actively associated with Teachers and Headmasters' Organisations in Bombay 1938 to 1955; member of several Educational Committees and Boards appointed by the Government of the former Bombay State.

Dayananda, Swami : see under 'World Educators and Educationists'.

Desai, Krishnakant Gopalji (b. 1923) : Principal A.G. Teachers College, Ahmedabad; B.Sc., B.T., M.Ed., Ph.D., M.A. (Columbia). Exp. Lecturer and Prof. of Education A.G. Teachers College; Visiting Prof. of Education Gujarat and Karnatak Universities; Member, Indian Association of Teacher Educators; All India Science Teachers Association; All India Educational and Vocational Guidance Association; visited U.S.A., U.K., France, West Germany, Austria, Switzerland, Italy, U.A.R., Philippines, Hong Kong, Thailand. Pub. *Group Tests of Intelligence, Wastage in Secondary Education in Gujarat* and Textbooks of English, Mathematics, Science, Statistics, General Education and Geography.

Deshmukh, Chintaman Dwarkanath (b. 1896) : Edn. Elphinstone College, Bombay; Jesus College Cambridge, passed U.K. Bar Examination 1919; entered the I.C.S. in 1919. Exp. held various offices in the Government of India, Union Minister of Finance (1950-56), Chairman; University Grants Commission (1956-60), Vice-Chancellor, Delhi University (1962-67). Add. 40, Lodi Estate, New Delhi.

Devannabhata : see under 'World Educators and Educationists'.

Dhananjaya : see under 'World Educators and Educationists'.

Dharmaratna : see under 'Great Teachers of Ancient India'.

Dharmapala : see under 'Great Teachers of Ancient India'.

Dickney, A.M. : Head of the Department of Education and Library, Pemraj Sarda College Ahmednagar (Maharashtra). M.A., M.Ed., Dip. in Library Science. Exp. Librarian for 7 years, lecturer in education for 5 years. Add. 358, Shaniwar Peth, Khabutar Khana Road, Poona-30.

Dinkerrai, V.M. : Principal, Ramba Graduate Teachers' College, Porbandar; B.Sc. (Hons.), B.T., M.Ed. Exp. over 10 years as Prof. of Education and Psychology; over 2 years as

District Educational Inspector.

Dosajh, N.L. (b. 1916) : Principal, Govt. College of Education, Chandigarh; M.A. (Psy.), Ph.D. (Psy.). Exp. 24 years as a teacher, lecturer and senior lecturer and 10 yrs. as a Principal; Member of many professional organizations. Pub. *Guidance in India, Delinquency, Thoughts on Education, The Problem Child and the Secondary School Teacher, Advanced Educational Psychology, Psychotherapy, Organization of Guidance Service in Punjab, Guidance Movement in India, Problem Children (in Hindi), Talks to Children on Sex Education (Hindi)*. Add. 1121, Sector 15-B, Chandigarh.

D'Souza, Austin Anthony : Inspector of Anglo-Indian Schools since 1953, West Bengal. M.A., B.T., Dip. Edn. (Lond.), A.I.E. (Lond.). Exp. Senior English Master, La Martiniere Boys School, Lucknow, 1943-47; Lecturer St. Joseph's College, Nainital 1950-53. Pub. *Aspects of Education in India and Abroad, Further Aspects of Education in India and Abroad, The Human Factor in Education*.

Dubey, S.N. : Lecturer, Department of Education G.S. Degree College, Samodhpur, Jaunpur; M.A., M.Ed. Exp. 6 years teaching, 2 years as editor, 5 years as a full time author. Pub. (in Hindi) *Shiksha Vigyan, Shiksha Manovigyan, Shiksha Siddhanta, Pathshala Prabandh, Prayogatmak Manovigyan, Pashchatya Shiksha-Shastri, Shiksha Darshan, Shaikshik Mapan, Shilp Shikshan*, etc.

Duff, Rev. Dr. Alexander : see under 'World Educators and Educationists'.

Duggal, Satya Pal : Principal D.A.V. College of Education, Abohar (Punjab). M.Sc. Chemistry, M.A. Sanskrit, M.Ed., S.Ed. (Wisconsin), Ph. D. (Michigan). Exp. 17 years, Fulbright Exchange Teacher in the U.S.A. during 1966-68. Pub. *Psychology in Education, Srishti Jeevan Vigyan, Vigyan Kaise Padhai*. Add. 223, Adarsh Nagar, Jullundur City.

Duncan, Jonathan : see under 'World Educators and Educationists'.

Durairasu, A. (b. 1928) : Member, Lok Sabha; Educated at St. Joseph's High School Trichy and Teachers Training School Trichy; worked as a teacher for ten years. Add. Balakrishnam-patty P.O. (via) Uppliapuram, Musiri Taluk, Tiruchirappalli, Madras.

Dutta, Hem Chandra (b. 1909) : B.A., B.T. Teaching and Inspecting experience of primary, middle and high schools in Assam. Pub. *Our Educational System; History of Assam—Its Place in the School Curriculum*. Add. Na-Ali, P.O. Jorhat, Assam.

E

Elphinstone, John : see under 'World Educators and Educationists'.

Elphinstone, Mount Stuart : see under 'World Educators and Educationists'.

G

Gandhi : see under 'World Educators and Educationists'.

Gangesa : see under 'World Educators and Educationists'.

Gargi, Vachaknavi : see under 'Great Teachers of Ancient India'.

Gawan, Mahmud : see under 'World Educators and Educationists'.

Ghate, Vitthal Dattoray (b. 1895) : Marathi writer, Member Sahitya Akademi, New Delhi. M.A., B.T., T.D. (London). Exp. joined Bombay Educational Service ; Principal, S.T. College Belgaum ; Deputy Director of Education, Bombay State. Pub. *Dramatized History of Maharashtra in Marathi* (1925), *Teaching of History* and several other works including *Madhu Madhav* (collection of poems) and *Autobiography* (1961). Add. "Sushama", Deccan Gymkhana, Poona.

Gokhale, Gopal Krishan : see under 'World Educators and Educationists'.

Gore, Madhav Sadashiv (b. 1921) : Director Tata Institute of Social Sciences, Bombay since 1962. Dip. in S.S.A., M.A., Ph.D. (Columbia). Exp. Lecturer, Delhi School of Social Work 1948-

53 : Principal 1953-62 ; Visiting Lecturer Wisconsin University 1960-61 ; Member of various national and international organizations. Pub. *Social Work and Social Work Education* (co-editor) ; Papers on the Sociology of Education.

Gotama Rahugana : see under 'Great Teachers of Ancient India'.

Grant, Charles : see under 'World Educators and Educationists'.

Gunavarman : see under 'Great Teachers of Ancient India'.

Gupta, B.R. : Senior Lecturer, Department of Education, J.V. Jain College, Saharanpur. Edn. M.A., B.T. experience of 10 years as teacher-educator. Pub. *History of Indian Education* (Hindi).

Gupta, Sri Nath Das : Head of the Department of Education, Harish Chandra Degree College Varanasi ; M.A., B.Sc., M.Ed. Experience of 21 years. Secretary, Gorakhpur University Teacher Educators Association. Pub. *Educational Philosophy, Techniques of Teaching and High School Chemistry* (Hindi). Add. K-31/68, Bhaironath, Varanasi.

H

Haldar, Gourdas : Professor in charge B.T. Department Tamralipta Mahavidyalaya, Tamluk, Midnapur. M.A., B.T. Teaching experience of 12 years in school and 5 years in college. Pub. (in Bengali) *Shikshan Prasange Samaj Vidya, Shikshan Prasange Arthaniti O' Pauranigham*, and *Shikshan Prasange Itihas*. Add. Abashbari, P.O. Tamluk, Dist. Midnapur (W. Bengal).

Harc, David : see under 'World Educators and

Educators'.

Hemchandra : see under 'World Educators and Educationists'.

Hiregange, T.K. (b. 1937) : Lecturer, University College of Education, Dharwar since 1962. M.A., M. Ed. Exp. Assistant master in various schools of Mysore. Pub. *Instruction on Teacher Preparation in History*.

Hunter, William Wilson : see under 'World Educators and Educationists'.

J

Jain, Shikhar Chand (b. 1928) : Principal, Government College of Education, Raipur. B.Se., M.Ed. ; teaching experience 13 years.

James, Fr. Joseph : Principal, St. Joseph's Trg. College, Mannanam. B. Sc., M. A., M. A. T. (U.S.A.) Exp. 3 years in High School, and 5 years in a Training College. Pub. *India Yesterday and Today* and *Health Education*.

Janaka : sec under 'Great Teachers of Ancient India'.

Jayaswal, Sitaram (b. 1919) : Department of Education, Lucknow University. M.A., M.Ed., Ph. D.; educated at Allahabad, Agra, Harvard and Michigan Universities. Pub. *Shiksha Shastra, Pashchimi Shiksha ka Itihas, Early Childhood and Adult Personality*.

Jetari, Acharya : sec under 'Great Teachers of Ancient India'.

Jevoor, S.V. (b. 1917) : Director of Public Instruction, Mysore, since 1966. B.A. (Hons.), B.T., M.Ed. Exp. Assistant Master, District Information Officer, Assistant Lecturer, Assistant Educational Inspector and Educational Inspector, Mysore State 1939-55; Principal S.T. College, Belgaum and G.B.T.C. College, Dharwar 1955-57; Deputy Director of Public Instruction 1957-60 and 1962-63, A.I.D. Scholar in U.S.A. 1962.

Jha, V.S (b. 1899) : formerly Director, Commonwealth Education Liaison Unit, London. B.A., Ph. D. (London). Exp. Commenced his career as an Assistant Professor of Philosophy and Psychology in Morris College, Nagpur ; served in the Administrative Education Services of Madhya Pradesh as Inspector of Schools, Deputy Director of Public Instruction, Director of Public Instruction ; Education Secretary to the Government of Madhya Pradesh 1948-52 ; Chairman, Union Public Service Commission, Madhya Pradesh 1952-56 ; Vice-Chancellor, Banaras Hindu University ; the first Director, Commonwealth Education Liaison Unit, London, 1960-63 ; member, Education Commission 1964-66 ; attended many international conferences on education.

Pub. *Report on Physical Education in Madhya Pradesh, Report on Secondary Education in Madhya Pradesh*. Add. 868, Wright Town, Jha Marg, Jabalpur.

Jitavan Salini : sec under 'Great Teachers of Ancient India'.

Jnanapada, Acharya Buddha : sec under 'Great Teachers of Ancient India'.

Jnana Sri Mitra, Mahapandita : sec under 'Great Teachers of Ancient India'.

John, V.V. : Vice-Chancellor, University of Jodhpur, M.A. (Madras), M.A. (Oxford). Exp. Teacher of English since 1936, First Registrar of Utkal University 1943-44, Principal, F. M. College, Balasore 1949-50, Principal, Government Colleges in Rajasthan, 1950-62, Director of Education, Rajasthan, 1962-67 ; Editor 'Quest' since January 1969. Pub. *Educational Language Policy, Light Luggage and The Orbiting Professor*. Add. Vice-Chancellor's House, Harish Joshi Marg, Jodhpur.

Jones, William : sec under 'World Educators and Educationists'.

Joshi, Amar Chand (b. 1908) : former Vice-Chancellor Banaras Hindu University (1967-69). D.Se., F.N.I. Exp. Principal, Government Training College for Teachers, Jullundur, 1951-53 ; Director of Public Instruction and Secretary to the Government of Punjab 1953-57 ; Vice-Chancellor, Kurukshetra University 1956-59 ; Member, University Grants Commission 1960-65 ; Vice-President, National Institute of Sciences of India 1963 and 1964 ; Member, National Planning Council and Central Advisory Board of Education ; Vice-Chancellor, Punjab University ; Adviser (Education), Planning Commission (1965-67).

Josli, Hanumant Ganesbhat : Lecturer in Education, Government College of Education, Belgaum. B.A. (Hons.) D.B.E., M. Ed. Exp. 19 years in Teacher Training Institutes ; 3 years in administrative post. Pub. *Mool Shikshan Memnuase* (A Treatise on Basic Education in Kannada). Add. Lakamanhalli Galli, Dharwar (Mysore State).

K

Kabir, Humayun : sec under 'World Educators and Educationists'.

Kalam, Abul : Director of Art and Art Educa-

tion at Jamia Millia Islamia, New Delhi. Edu. studied fine arts under Nandalal Bose, graduated from Visva Bharati 1941, B.S. and

M.A. in Fine Arts and Fine Arts Education from Columbia University (U.S.A.). Exp. member of various committees on Art Education; organized and directed All-India Art Teachers Convention 1952 and directed several training courses for art teachers like All India Refresher Course in Art 1957, Fourth Regional Workshop in Art and Craft Education 1965. Pub. Several papers and articles including *The General Classroom Teacher*, *The Painting of Rabindranath Tagore*, *Teaching of Art and Craft in Basic Schools*, *Present Day Problems of Art Education and Teacher Education*, *The Renaissance of Indian Art*.

Kalathiiveeti, Teresa K.: Principal, Institute of Education, Panjim, Goa. B.A., M.A., Ph.D. (Education), Loyola University Chicago, U.S.A.; Certificate in Sociology and Education, Sorbonne University, Paris. Exp. one year as a school teacher in U.S.A., one year as a Fellow at an American University, and 7 years Principal of the Institute.

Kalelkar, Kakasaheb (b. 1885): eminent scholar, writer, educationist and exponent of Gandhian thought; graduated from Fergusson College, Poona; took active part in the revolutionary political activities of his day; later became a teacher at Shantiniketan and worked with Rabindranath Tagore; in 1915 met Mahatma Gandhi and worked under his guidance; was Vice-Chancellor of Gujarat Vidyapeeth; nominated as member of Rajya Sabha; chairman of Backward Classes Commission in 1953; vice-president Indian Council of Cultural Relations; recipient of 'Padma Bhushan' in 1965; received Sahitya Akademi Award for the book *Jeevaneyavastha*. Pub. published more than 50 books including *Jiva Tahevaro* (sociology), *Dharmodaya* (autobiography), *Lokmata* (travel), and *Jivan-no Anand* (essays) Add. Sannidhi, Rajghat, New Delhi.

Kamalasila: see under 'Great Teachers of Ancient India'.

Kamla Kumari (b. 1937): Member, Lok Sabha, M.A., Dip. Ed.; Government Girls High School and Women's College Ranchi and the Ranchi University; worked as principal, Girls' Higher Secondary School, Daudanagar, Gaya 1966-67. Add. Sarat Babu Lane, Ranchi, P.O. and Distt. Ranchi (Bihar).

Kane, Pandurang Vaman (b. 1880): National Research Professor of Indology since 1959; a great Orientalist; received Bharat Ratna in 1963; best known for his *History of Dharmashastra*, the fourth volume of which won the Sahitya Akademi Prize as the best work on Sanskrit Literature during 1953-56; represented

thrice at the International Congress of Orientalists.

Kapur, J.N.: Professor of Mathematics, Indian Institute of Technology, Kanpur. M.A., Ph. D., F.N.A. Sc., F.A. Sc., F.I.M.A., F.N.I. Exp. President of Bharat Ganit Parishad; Member of the Panel for Mathematics of the National Council of Science Education, of Council of Indian Mathematical Society, of Association of Mathematics Teachers of India and various other societies; Chief Editor for N.C.E.R.T. school mathematics text books. Pub. *Some Aspects of School Mathematics*, *Some Aspects of Mathematics Education in India*, *Suggested Experiments in School Mathematics* (3 Vols.), *New Mathematics for Parents*, *Modern Mathematics for Teachers*, and many other books on mathematics.

Kar, Bhubendra Chandra (b. 1915): Head Education Department, Gauhati University; B.A. (Hons.), M.A., B.T. University Teachers Dip. and M.A. Education (London University). Exp. Lecturer, Child Psychology K.G. College, Dacca, 1941-43; Professor, Philosophy, Dacca University 1943-44; Special Inspector of Schools (West Bengal Government) 1949-50. Pub. *Education: A Study of its Principles and Psychology*. Add. 'Kapilsadma', 274, Bangur Avenue, Calcutta.

Karve, Bhaskar Dhondo (b. 1903): Secretary Karve Institute of Social Service, Karvenagar, Poona. B.Sc., B.T., Master of Education (Leeds University) 1929. Exp. joined Hingne Stree Shikshan Sanstha (Poona) as a life worker in June 1930; Secretary, Stree Shikshan Sanstha 1932 to 1962; Principal, Training College for Women, Hingne, for many years. Pub. *Shikshan Vishayak Nave Viehar*, *Adhyapan Shastra*, *Mee Kasa Zalo*. Add. B.D. Karve, Karvenagar, Poona-4, Maharashtra.

Karve, Dhondo K.: see under 'World Educators and Educationists'.

Kashyapa, Arjuna Chaube (b. 1916): Principal Degree College Pratapgarh since February 1961. M.A., M.Ed. Exp. Lecturer, Gaya College, Gaya, 1949-58; Principal S. Sinha Degree College, Aurangabad 1958-61. Pub. 25 books including *Adi Bharata Samanya Manovijnana*, *Bal Monovijnana*, *Dharamshastra ka Itihasa* (5 Vols.). Add. Mahuatar, P.O. Surtanipur, Distrikt Varanasi (U.P.).

Kasyapa: see under 'Great Teachers of Ancient India'.

Kaul, G.N.: Field Adviser, N.C.E.R.T., New Delhi. Ph.D. Exp. Lecturer in Education, M.S. University Baroda; Principal, M.B. Higher Secondary School, New Delhi; Assistant

- Education Officer, Municipal Corporation Delhi; Field Adviser N.C.E.R.T.; Member, Task Force on Teacher Education, Education Commission 1964-66. Pub. *Better Schools for India, A New Basis of Indian Educational Thought, Promotion of Learning in Kashmir during the Hindu Period up to 1339 A.D.* Add. F-72, Green Park, New Delhi.
- Kauravyayani-putra** : see under 'Great Teachers of Ancient India'.
- Kesavsvamin** : see under 'World Educators and Educationists'.
- Kelkar, Shridhar Vithal (b. 1912)** : B.Sc., B.T., M. Ed., Ph.D.; Principal, S.M.T.T. College Kolhapur, 1957-60, Principal P.G. B.T. College, Amravati 1960-61, Deputy Director, Maharashtra State, 1961-62; Principal, Graduate Basic Training Centre, Dhulia for a number of years. Pub. '*Bhumiti Parichaya*', '*Chhotianchi Olakh*', '*Aplain Vyaktibhar*'. Add. 8 Tilakwadi Belgaum, Mysore.
- Ketkar, Shridhar Vyankatesh (1884-1937)** : A noteworthy literary and publishing career; compiled the *Marathi Encyclopaedia* running into 23 Volumes; obtained his doctorate from the U.S.A. Pub. *Gujarati Encyclopaedia* (2 vols.).
- Khaifi, Shaikh Zainuddin** : see under 'World Educators and Educationists'.
- Khair, Gajanan Shiripat (b. 1898)** : Educationist and Social Worker since 1920; Chairman Anath Vidyarthi Griha, Poona. M.A., Ph. D. (N.Y. University) Exp. Editor, 'Progress of Education', Poona; member several educational associations, of Task-force Kothari Commission; life member of Anath Vidyarthi Griha, an educational and philanthropic institution. Pub. *Paschimatyia Shikshan Paddhati*. Add. 1912, Sadashiv Peth, Poona-30.
- Khan, Jamshed Ali** : Head of the Deptt. of Education, N.R.E.C. College, Khurja (U.P.), M.A., M. Ed. Exp. 10 years. Add. Chandheriyan, Atrauli (Aligarh), U.P.
- Khan, Sayyid Ahmed** : see under 'World Educators and Educationists'.
- Khusrau Amir** : see under 'World Educators and Educationists'.
- Kirpal, Prem** : see under 'World Educators and Educationists'.
- Kisku Miya Kumar (b. 1923)** : Member, Lok Sabha. M.A., B.T., M.A. (California). Exp. Teacher and Principal, Union Christian Training College, Berhampore, Murshidabad; Member, National Board of Christian Higher Education. Add. P.O. Bhimpore, District Midnapur, West Bengal.
- Kishore, Jugal (Acharya) (b. 1893)** : Vice-Chancellor, Kanpur University since 1966. M.A. (Oxford). Exp. Head of History Department of Gujarat Vidyapeeth, Ahmedabad 1920; deputed by Mahatma Gandhi to Bombay to organize teaching of Hindi at a newly started Ashram in Andheri 1921; joined Tilak School of Politics 1922; was elected to the Constituent Assembly; Vice-Chancellor of Lucknow University 1952; Minister of Labour and Social Welfare in U.P., 1954-58; Minister for Education and Social Welfare in U.P., 1960. Add. Shanti Seva Sadan, Dampiere Park, Mathura.
- Koehhar, S.K. (Mrs.)** : Senior Lecturer in Education, Government Post-Graduate Basic Training College, Dharamsala (Punjab); M.A. M. Ed. Exp. Lecturer in Education in the Dev Samaj College for Women, Ferozepur 1950; worked for ten years in State College of Education, Patiala. Pub. *Secondary School Administration, Methods and Techniques of Teaching, Educational and Vocational Guidance in Secondary Schools, Teaching of Social Studies, and Teaching of History*.
- Koshe, Gangadhar Shridhar** : Director Maharashtra Vidyalyaya, Poona; B.A., B. Sc., M.Ed., M.A. Edn. (London); Ed. D. (Columbia). Exp. Headmaster of a Secondary School for 14 years; Professor of Education, Women's University for 5 years; Research Guide, University of Poona; Hon. Research Professor, State Institute of Education, Poona. Add. Anath Vidyarthi Griha, 1786, Sadashiv Peth, Poona-30.
- Koshy, Theverthundyil Abraham** : Head of the Deptt. of Adult Education, N. C. E. R. T. since 1963. B. Sc. Agriculture (Allahabad); M. Sc. (Ohio), Ph. D. (Ohio). Exp. Graduate Assistant, Botany, Ohio State University 1945-48; Assistant Professor Biology 1950-53; Professor Biology 1953-56; Head Biology Department, Allahabad Agricultural Research Institute 1950-52 and 1954-56; Special Officer, Social Education, Ministry of Community Development 1956-57; Head Biology Department and Offg. Principal, Allahabad Agricultural Institute 1957-58. Executive Director, Literacy House, Lucknow 1958-63; Member of many educational organisations at the national and international level. Pub. Co-author of *Experiment in Extensions*; numerous articles in educational journals. Add. A-29, N.D. South Extension Part II, New Delhi-49.
- Krishnayya, G.S.** : formerly Principal, State Teachers' College, Belgaum; educated at the Noble College, Masulipatnam, Madras Christian College and Teachers' College, Columbia University; studied under such renowned

Professors as Dewey, Thorndike and Kilpatrick. Exp. The First Indian to become Inspector of European Schools in the former Bombay Province 1939-48; Principal, State Teachers College, Belgaum for a few years and retired as such in 1954; Principal of the Shivaji Military School 1954-55; District Scout Commissioner 1955-62. Pub. *Citizenship Training in Schools; The Rural School and the Community; Going to U.S.A.*; Edited *Sunshine*, a youth magazine for the schools.

Kshamendra: see under 'World Educators and Educationists'.

Kulandaivel, K.: Principal, Sri Ramakrishna Mission Vidyalaya Teachers College, Coimbatore, Tamilnadu since 1957. M. A. Econs., M. A. Edn. (Ohio, U.S.A.), Ph. D. Earlier worked as school teacher for about 2 years and as Headmaster for about 6 years; visited U.S.A., U.K., Germany and other European countries.

Kumarajiva: see under 'Great Teachers of Ancient India'.

Kundley, M.B.: Lecturer University Training College, Nagpur. M.A., M. Ed. Exp. 6 years in the Secondary School and 13 years in training college; Chief Editor of *Shikshan Samiksha*; published 3 books on education in Marathi. Add. Joshi Wadi, Nagzibhai Town, Sitabuldi, Nagpur.

Kunzru, Hriday Nath (b. 1887): President Servants of India Society since 1936; B.A., B.Sc., LL.D. Exp. Member U.P. Legislative Council 1921-23, Central Legislative Assembly, 1927-30; Constituent Assembly; Provisional Parliament and Council of States 1937-46, Rajya Sabha 1952-62; President, Indian Council of World Affairs since 1948 and Indian School of International Studies since 1955; member U.G.C.; National Commissioner, Bharat Scouts and Guides 1950-57. Add. P.D. Tandon Rd., Allahabad.

L

Lajpat Rai: see under 'World Educators and Educationists'.

Lal, Raman Behari (b. 1934): Head of Deptt. of Education, Dayanand Vedic College, Orai. M.A., B. Sc., L. T., 15 years teaching experience. Pub. *Hindi Shikshan*, and *Shiksha Aur Shikshan*. Add. 115, Hari Nagar, Meerut.

Lall, D.I. (b. 1912): formerly Director of Public Instruction, Haryana. T.D., M. A. Edn. (London). Exp. Professor Education Government Training College Jullundur 1955-57; Assistant Educational Adviser, Ministry of Education, Government of India 1957-61; Secretary, Central Board of Education 1961-65; Deputy Director Public Instruction, Haryana 1966-67. Pub. *Principles and Practices of Education, Adult Education for a New Democracy and Changing Concepts in Education*. Add. H-19, Green Park Ext., New Delhi-16.

Lele, Trimbak Purushotam (b. 1910): Reader Educational Research, Baroda University since 1956, B. Sc., Dip. in Edn., Ed. B. (Hons.) (Scotland). Exp. Teacher, High School 1931-40; Lecturer in Education 1940-56; Head of Examination Reform & Research, Baroda University 1960 onwards; Visiting

Professor Michigan University 1964-65. Pub. *Research Studies in Education* (Five monographs), and *Educational and Vocational Guidance Service*. Add. Shastri Pole, Baroda.

Lulla, B.K.P.: Reader in Education, Faculty of Education and Psychology, M.S. University of Baroda; M.A., M. Com., M.Ed. Specialist in Education (Kansas, U.S.A.), Ph.D. (Michigan). Exp. 10 years at secondary school, 13 years of teaching at college level and 3 years of research. Pub. About 50 articles and papers in several newspapers and journals; several monographs. Editor, *Social Studies Teachers*. Add. J-1, Vikram Baug, University Quarters, Baroda.

Lutter, Lilian G. (Miss): Principal, Maharani Gayatri Devi Girls Public School, Jaipur; recipient of 'Padma Shree'. Exp. worked as Principal of a girls school and training college in Burma for a few years, received the Medal of Merit from the British Government. Chairman of the Rajasthan State Teachers' Association; Commissioner of Girls Guides, and President of the Jaipur Sports Association for some time; transformed the present school into one of the foremost girls institutes in the country.

M

Macaulay, Thomas Babington : see under 'World Educators and Educationists'.

Mahesa Thakkura : see under 'Great Teachers of Ancient India'.

Mahidasa Aitareya : see under 'Great Teachers of Ancient India'.

Mahisvara : see under 'World Educators and Educationists'.

Maitreyi : see under 'Great Teachers of Ancient India'.

Majumdar S. C. (b. 1915) : Principal, Post-Graduate Training College, Shillong, M.A. English and Modern Indian Languages, B.T., M.A. Education (London). Exp. Lecturer in St. Edmunds College ; founded The Training College. Pub. *Wardha Scheme of Basic Education, Education in Assam and Principles of Education*.

Mallappa, K. : Principal, Government College of Education, Mangalore. M.A., M. Com., M.S. in Edn. (Southern Illinois). Exp. Worked as a Lecturer, Headmaster, Inspecting Officer, Senior Assistant Director of Public Instruction, Reader in State Institute of Education, Prof. of Education and Principal. Pub. *Papers on Education of the Gifted, Supervision for Improving Instruction*, etc.

Malviya, Madan Mohan : see under 'World Educators and Educationists'.

Mandal Yamuna Prasad (b. 1910) : Member, Lok Sabha. B.A., Dip. Education ; worked as Headmaster, took active part in Quit India Movement ; President Thana Teachers Association, 1949-51, Member District Board Education Sub-Committee, Darbhanga ; founded three High Schools. Add. Vill. Rajarampatty, P.O. Dhanchhika Baruar via Nirmali, Dist. Darbhanga.

Mangaldas, Leena Madanmohan (b. 1915) : Executive Member Shreyas Foundation, Ahmedabad ; engaged in social and educational work ; Chairman, Indian Council of Child Welfare ; has travelled widely in Asia, Africa, America and Europe. Pub. Many books in Gujarati on several subjects including education, travel and children's plays. Add. Shreyas near Sharda Society, P.O. Anand Nagar, Ahmedabad.

Mankha : see under 'World Educators and Educationists'.

Mannath Padmanabhan (1870-1970) : Founder of the Nair Service Society 1890, which now runs 17 colleges including an engineering college, over 50 secondary schools and middle

schools ; worked as teacher in a high school and afterwards practised as a Vakil ; worked for the uplift of Harijans ; was the President of All India Vivekananda Rock Memorial Committee.

Mardikar, K.S. (b. 1921) : M.A., M. Ed. and Ph. D. (Poona). Exp. Principal Dayanand College of Education, Sholapur since 1955 ; Lecturer, Dayanand College, Sholapur 1949-50 ; Headmaster Siddheshwar High School, Sholapur 1952-55.

Marshman, Rev. Joshue : see under 'World Educators and Educationists'.

Mary Colette (Rev. Mother) (b. 1922) : Principal, Rani Trg. College, Quilon, Kerala since 1968 ; M.A., M. Ed. Exp. 7 years in High School ; about 7 years as lecturer in Training College ; 3 years as professor ; visited European countries.

Mathai, Samel (b. 1908) : Vice-Chancellor, Kerala University Trivandrum since 1963. M.A. (Bombay), M.A. (Oxford). Exp. Taught English at Fergusson College, Poona ; Forman Christian College, Lahore and St. Stephen's College, Delhi ; Secretary, Inter-University Board of India, Burma and Ceylon 1948-53 ; Secretary, University Grants Commission 1953-63 ; Fellow, Royal Commonwealth Society, London ; Commonwealth Visiting Professor of Institute of Commonwealth Studies, London, 1966-67 ; closely connected with many national and international organizations. Add. 'Surana', Pongumood, Ulloor, Trivandrum.

Mathew, Anjilvel V. (b. 1892) : B.A., M.Ed., Ph.D. worked as Principal of various colleges in Kolhapur, Satara and Tiruvalla. Pub. *Examinations : a Constructive Survey, The Child and his Upbringing, Psychology and Principles of Education, The Upanishads and Modern Ideals in Education, Depth Psychology and Education, Karnavir Bhavraj Patil—An Educationist's Biography*. Add. 7/1, Sampargi Tank Road, Bangalore.

Mathur, Hari Mohan : Director of Primary and Secondary Education, Rajasthan. I.A.S., M.A. in Anthropology. Pub. contributed articles on anthropology and education in various journals. Add. C-95, Jaganpath, Opp. Sardar Patel Marg, Jaipur-1.

Mathur, M.V. (b. 1915) : Director Asian Institute of Educational Planning and Administration, New Delhi. B. Com., M.A. Economics M.P.A. (Harvard). Exp. Head of the Deptt. of Economics and Vice Principal, Chatisgarh College, Raipur, 1938-40 ; Professor and Head of the Department of Commerce, Maharaja's

College, Jaipur 1940-48 ; Personnel Officer and Acting Chief of Staff Regulations and Policies Division, United Nations Secretariat, Lake Success 1948-49 ; University Professor of Economics and Head of the Department of Economics and Public Administration, University of Rajasthan ; Dean of the Faculty of Arts ; has served as a member of numerous Committees and Commissions of national importance, in particular, member of National Executives of Indian Economics Association, Indian Commerce Association, Indian Council of World Affairs, Indian Institute of Public Administration & Research Programmes Committee, Northern Zone, Planning Commission ; Member, Education Commission 1964-66.

Mathur, Prem Narain (b. 1912) : Vice President, Banasthali Vidyapith, Rajasthan. M.A., B.Com. Exp. Minister for Finance and Education, Rajasthan 1948-49 ; Minister for Home and Education 1949-51 ; Indian representative at International Conference on Education held in Australia under the auspices of New Education Fellowship. Pub. many books on Economics. Add. Banasthali Vidyapith, Banasthali, Rajasthan.

Mathur, Raghuvansh Bahadur (b. 1918) : Prof. and Head of the Department of Education, Lucknow University. B.A. (Hons.) (London), Academic Diploma in Public Administration, Post-Graduate Certificate in Education (Cantab, London) ; Ph.D. (London). Exp. Reader in Education, University of Lucknow 1948 ; Head of the Department of Education, Lucknow University, 1953, member of many national and international professional organizations ; Member Indian Education Commission Task Force on the Revision of M. Ed. and B. Ed. Syllabi 1965 ; Member Standing Research Committee of the NCERT ; visited U.S.A., U.K. and U.S.S.R. Pub. *A Study of Prejudices of High School Students in U.P.* Add. Har Niwas, 10, Havelock Road, Lucknow.

Mathur, Vishwa Nath Sahai (b. 1917) : Vice Chairman, Board of School Education, Haryana, M.A. (London), Diploma in Education (Cambridge). Exp. Lecturer in Education, Central Institute of Education, Delhi 1948-50 ; Senior Lecturer in Education, Government Training College, Jullundur 1950-55 ; Principal, Government Post-Graduate Basic Training College, Chandigarh, 1955-63, State College of Education, Patiala 1963-66 ; Deputy Director of Public Instruction, Haryana for about 2 years ; Vice-President, All India Federation of Educational Associations ; member, National Executive of All India Association of Teacher Educators. Pub.

Studies in Indian Education, Some Problems in Indian Education, Education and the Future of India. Add. 219, Sector 19-A, Chandigarh. Maula Sayyid : see under 'World Educators and Educationists'.

Mayavan, V. (b. 1937) : Member, Lok Sabha ; B.A., B.T., B.L. Edn. Annamalai University Teachers College, Saidpet, Madras, Law College and Central Institute of English, Hyderabad. Add. 48, Omakkulam, Chidambaram, Madras. **Mazumdar, Amiya Kumar :** Principal, Post Graduate Basic Training College, Banipur (West Bengal). Exp. Worked as Principal of several colleges ; Assistant Professor of Philosophy, Presidency College, Calcutta ; Presently visiting Lecturer, Rabindra Bharati University, Calcutta. Member of many professional associations at the State and National level. Pub. *Vivekananda and America*, and *Bharata Sanskriti* (in Bengali). Add. 101/C, Vivekananda Road, Calcutta-6.

Mchta, Hansa (b. 1897) : Educator and Social Reformer, President, Gujarati Women's Co-operative Society 1924-48 ; President, Bombay Provincial Primary Education Board 1939-42 ; Vice President New Education Fellowship 1937 ; Vice-Chancellor M. S. University, Baroda 1949-58 ; Member U.G.C. 1948 ; Member Secondary Education Commission 1952-53 ; Member Inter-University Board of India 1956 ; several times President of All India Women's Conference ; member of Executive Board of Unesco 1958-60 ; represented India in many committees of U.N. ; was awarded Honorary Doctor of Letters by Allahabad University in 1958 ; by M.S. University in 1959 and LL.D. by Leeds University in 1965 ; recipient of 'Padma Bhushan' in 1959.

Mehta, Mohan Singh (b. 1895) : Formerly Vice-Chancellor, Rajasthan University 1960-66. M.A., LL.B., Ph.D. (London School of Economics), Bar-at-Law (Middle Temple, London). Exp. Minister for Revenue and Education of Mewar 1941-44 ; Chief Minister 1944-47 ; Ambassador to the Netherlands, 1949-51 ; High Commissioner to Pakistan 1951-55 ; Ambassador to Switzerland, Austria and the Vatican 1955-58 ; member, Indian Delegation to U.N. 1959 ; Founder President, Vidya Bhawan Society, Seva Mandir ; President, Indian Adult Education Association ; Vice President India Literacy Board. Add. Seva Mandir, Udaipur.

Milanda Panha : see under 'Great Teachers of Ancient India'.

Misra, Atmanand (b. 1913) : Professor and Dean, Faculty of Education, University of Saugor since 1967. M.A., B.Sc., LL.B., B.T.,

- D. Litt. Exp. Professor, Spence Training College, Jabalpur (1946-52); Principal, Prantiya Shikshan Mahavidyalaya, Jabalpur (1953-62); Principal, Regional College of Education, Bhopal (1962-64); Director of Public Instruction, Madhya Pradesh (1965-67). Pub. include *Educational Finance in India, The Financing of Indian Education, Grants-in-Aid of Education, Financing Education in India, Shikshan-Kala, Adhyapau-Sutra, Shaikshanika, Bhugol Shikshan Paddhati* (Sahitya-Niketan, Kanpur). Add. Professor and Dean of Education, Saugor University, Saugor (M.P.).
- Misra, Ram Gopal : Field Adviser NCERT. M.A. Maths. and Psychology, D. Phil. Advanced Training in U.S.A. Exp. Secondary school and post-graduate teaching and research for more than 20 years. Add. Z-1/A, Hauz Khas, New Delhi.
- Mody J.J. (b. 1914) : Lecturer Education and Psychology, Baroda Univ., since 1953. M.A., M. Ed. Exp. Teacher 1951-53. Pub. *Vowel System of Gujarati, Gujarati Consonants, Gujarati Swar Vyanjanmala, Shikshana-na-Sidhanti*. Add. Mody Chowk, Baijwada, Baroda, Gujarat.
- Mokshakaragupta, Mahapandita : see under 'World Educators and Educationists'.
- Mudaliar, A. Lakshmanaswami (b. 1887) : Formerly Vice-Chancellor Madras University from 1942 to 1969. Edn. Graduate in Arts and Medicine from University of Madras, M.D., F.R.C.O.G., F.A.C.S., F.R.C.P. Exp. Professor and Principal, Obstetrics and Gynaecology, Madras Medical College; President, Inter-University Board 1949; Chairman, Secondary Education Commission popularly known as Mudaliar Commission 1952-53; Chairman, Executive Board, Unesco 1954-56; President World Health Assembly 1961; was awarded Padma Vibhushan in 1963. Add. Kensington, 464, Poonamalle High Road, Kilpauk, Madras.
- Mujeeb M. (b. 1902) : Vice-Chancellor, Jamia Millia Islamia, Delhi. Educated at Lucknow, Dehra Dun and Oxford; graduated from Oxford in the Honours School of Modern History, remained in Germany from 1922 to 1926. Exp. Joined Jamia Millia in March 1926 as Professor of History and Politics. Pub. *Education and Traditional Values, A History of European Political Thought, A History of Ancient Indian Civilization, A History of World Civilization*.
- Mukerjee, Adhir Kumar (b. 1921) : Principal, Ramakrishna Mission Teachers Training College, Belur Math (West Bengal) since 1958. B. Sc. (Hons.), M. Sc. Psychology, M.A. Edn. (Southern California University). Exp. Chief Audio-Visual Department USIS Calcutta 1951-55; Principal, Social Education Organisers Training Centre, Belur Math 1956-58, visited U.K., U.S.A., Canada, Mexico, France, Germany.
- Mukerji, Ashutosh : see under 'World Educators and Educationists'.
- Mukerji, S. N. (b. 1909) : Principal, Vidya Bhawan Teachers Training College, Udaipur. M.A. (Nagpur), M.A. (Columbia), B. T. (Nagpur), T.D. (London), High Dip. Ed. (Dublin), Dip. Edn. Adm. (Columbia), Ph. D. (Columbia). Exp. Professor, Secondary Training College, Baroda 1936-47; Inspector of Secondary Schools Baroda State 1947-49; Head Department of Education 1949-54; Head Department of Educational Administration 1954-60; Dean, Faculty of Education and Psychology; and Director, Centre for Advanced Studies in Education, Maharaja Sayajirao, University of Baroda 1960-65; Director, Department of Foundation of Education and Educational Administration NCERT 1966-68; Editor 'Education and Psychology Review' and 'Social Studies Teacher'. Pub. *Education in India To-day and To-morrow; History of Education in India (Modern Period); An Introduction to Indian Education; Higher Education and Rural India; Secondary School Administration; Education in India in the 20th Century; Education in America; A Symposium on the Administration of Education in India*; (in Hindi) *Bharat me Shiksha, Bharatiya Shiksha ka Itihas and Rashtra Bhasha ki Shiksha*.
- Mukerjee, L. : U.G.C. Research Professor of Education, Lucknow. M.A., B. Ed., Ph. D., Cert. International Edn. (Harvard); Cert. Edn. Measurement and Administration (U.S.A.). Exp. 10 years as school teacher, 10 years as lecturer in Intermediate College, 15 years as University Teacher (Lucknow University, and two years as U.G.C. Research Professor; represented India and adjoining countries as an expert in Cross Cultural Psychology Research, Unesco, Bangkok in 1958 and in 1960; served as Unesco expert in Methodology of Educational Research, Sao Paulo, Brazil 1962-63; Member of several educational associations; Hony. Chief Editor, *The Education. Pub. Comparative Education, Art of Teaching Successfully, Problems of Administration of Education in India, Shiksha Manovigyan ke Rup Rekha, Introduction to Methods of Research*. Add. Harendra Niwas, B-723, Sector C, Mahanagar, Lucknow.
- Mukherjee, Satish Chandra : see under 'World Educators and Educationists'.

Munshi Kanaiyalal Maneklal (b. 1887) : Founder President, Bharatiya Vidya Bhawan since 1938. B.A., LL.B., D. Litt., LL.D. One of the founders of the Indian Constitution ; Senior Advocate Supreme Court ; Minister in the State Government (Bombay) ; Agent-General of the Government of India in Hyderabad 1948 ; Food and Agriculture Minister, Union Government 1950-52 ; Chairman of the Sanskrit Vishva Parishad ; Member of many literary and cultural organizations ; author of numerous books including social novels, plays,

historical romances, mythological dramas and novels.

Murthy, Sri Vincent : Principal, Mount Tabor Training College Pathanapuram, Quilon, Kerala. B. Sc., M. Ed. Certificate in Teacher Education in Administration and Supervision (U.S.A.). Exp. about 20 years in the field of education and teacher-training ; Member of Kerala University, Senate and several educational organizations. Pub. *An Achievement Test in General Science for Standards Six and Seven*.

N

Nagarjuna : see under 'Great Teachers of Ancient India'.

Naik, J.P. : see under 'World Educators and Educationists'.

Naik, M.H. (b. 1918) : Principal Government College of Education, Mangalore since 1963. B. Sc. (Hons.), B.T., Dip. in Education, M.Ed. Exp. Principal Government Training College, Karwar 1953-56 ; Lecturer Teachers College, Belgaum 1956-61 ; Distt. Education Officer, Dharwar and Hussan 1961-63 ; visited U.S.A. Add. 'Devikripa', Kogre, Ankola, Distt. North Kanara.

Nair, C. Sankaran (1857-1937) : As a member for Education, Health and Lands in the Viceroys Executive Council, he put forward a scheme for universal primary education which was accepted by the Council ; appointed a Commission headed by Sir Michael Sadler to investigate the entire system of education in the Calcutta University ; resigned from Viceroy's Council on the Amritsar Massacre (1919).

Narendra Deva (Acharya) : A nationalist leader, statesman and politician and above all an eminent educationist, passed his M.A. from Queen's College, Banaras ; joined the Kashi Vidyapeeth in 1921 as a professor ; served as principal of the institution for a number of years and became the idol of his students ; an enthusiastic lecturer who held his students spell-bound with his command of language and subjects ; an ideal Vice-Chancellor of Lucknow University who was venerated both by the students and the teachers ; his love for teaching and education was as strong as his love for the independence of his country ; headed two committees on education popularly known as

Acharya Narendra Dev Committee (1949) and Acharya Narendra Dev Committee (1953)—appointed by the Government of Uttar Pradesh which made valuable recommendations on the reorganization of education in the province.

Natarajan, Srinivasa (b. 1901) : Director of Projects of South Indian Teachers Union Council of Educational Research since 1959. Exp. Senior science teacher St. Gabriel's High School Madras 1922-42, Headmaster. 1942-55, Director, Field Services, All India Council of Education, 1955-59, Vice-President, All India Federation of Educational Associations, 1954-62, World Confederation of Organization of the Teaching Profession since 1967, invited by ILO and Unesco as expert on status of teachers, 1963-66. Add. S.I.T.U. Colony, 3 Thiruvengadam St., Raja Annamalaipuram, Madras.

Nath, Satrugna : Principal, Radhanath Training College, Cuttack since 1968. B.A. (Hons.), Dip. in Edn. (Patna), M.A. (London). Exp. Organiser, Board of Basic Education 1950-55, Principal, Basic Training College, Angul 1955-64, Principal, State Institute of Education, Bhubaneswar 1964-68. Add. Uttara-bahini, P.O. Bhadrak, Distt. Balasore, Orissa.

Nayak, K.P. : Principal Government College of Education Jamkhandi, Distt. Bijapur, Mysore. Edn. M.A., M. Ed., Ph. D. Exp. 10 years in Secondary Education including Basic Edn., 19 years in Higher Education, Teacher Education and Administration, visited U.S.A. under a Teacher Development Grant ; also visited U.A.R., Canada, U.K., France, U.S.S.R. and other European countries. Pub. *Educational Psychology, Educational Sociology, Educational Administration, Theory and Practice of Basic*

Education, Educational Decision.

Nayar, D. P. (b. 1918) : Senior specialist (Education), Planning Commission. Edn. Central Model School Lahore, Govt. College Lahore, Hindu College Delhi University, Dip. in Basic Education, Sevagram. Exp. Engaged in Gandhiji's Educational Experiments and taught in the Sevagram Basic School and Post-Graduate Basic Training College, Sevagram

1944-47, worked on the problems of rehabilitation of Muslims in Bihar 1947-48 ; Officer on Special Duty, Ministry of Education 1949-50, working in the Planning Commission since July 1950. Pub. *Building for Peace on Gandhiji's Ideas on Social Education, Our Plans and Projects* and *The Education System of Japan* (1964).

P

Padmanabhan, C. B. (b. 1928) : Economist, Asian Institute of Educational Planning and Administration, Delhi since 1965. M.A. Economics, M. Litt. ; underwent training in Research Methodology, Madras University. Exp. Lecturer Vivekanand College, Madras 1950-54 ; Research Fellow, Ford Foundation Unit Madras University 1958-59 ; Asstt. Professor Madras Christian College, Tambaram 1954-62 ; Economist, Unesco Research Centre 1962-65, participated in many national and international seminars and conferences. Pub. about 40 articles and research papers.

Padma Sambhava : see under 'Great Teachers of Ancient India'.

Pal, Samir Kumar (b. 1928) : Assistant Professor, Education Department, Allahabad University. M.A., M. Ed., Diploma Applied Psychology (U.P.), Diploma Guidance (Columbia University). Exp. Assistant Master Inter College 1949-50 ; Lecturer in Psychology Teachers Training College 1951-52 ; Psychologist, Psychological Bureau 1952-54 ; visited U.S.A. and Japan. Pub. *Great Educators* (in Hindi), *Principles and Foundations of Education* (in Hindi). Add. 44, Darbhanga Castle Compound, Allahabad.

Paliwal, M.R. (b. 1915) : Principal, Government Teachers Training College Bikaner since 1963. M.A. English and Hindi, LL.B., M. Ed. Exp. Lecturer English 1945-59 ; Professor Education Department 1959-63. Pub. *Bhasha-Shikshan ki Roop Rekha* and *Buniyadi Shikshan*. Add. Madhava Nivas, Near Public Park, Bikaner.

Panandikar, S. (Miss) : Member Education Commission 1964-66 ; served as Professor of Education and Principal of Secondary Teachers Colleges in Belgaum, Bombay and Baroda for about 23 years ; worked as Inspecting Officer, Deputy Director of Public Instruction, Joint

Director of Education and Director of Education of the Bombay State ; member, International Team on Secondary Teachers and Curricula 1953-54 ; All India Council for Secondary Education, 1955-58 ; Central Advisory Board of Education ; National Council of Women's Education.

Pandey, Batuk Nath : Field Adviser, Department of Teacher Education NCERT, New Delhi. M.A., M. Ed., British Council Scholar 1957-58, USAID participant 1962-63. Exp. 4 years in Intermediate College and Degree College ; 3 years in Training College ; 12 years in C.I.E. Delhi. Pub. (in Hindi) *Shikshalaya Sanghathan tatha Swasthya, Bharatiya Shiksha Vikas ki Katha, Bharatvarsha ka Itihas*, etc.

Pandey, Ram Shikal : Assistant Professor of Education B.R. College of Education Agra. M.A., M. Ed., Ph. D. Exp. 3 years as lecturer in psychology and 11 years as assistant professor. Pub. *Our Adolescents : their Interests and Education ; Pragmatic Theories of Education* ; (in Hindi) *Vyavharit Manovigyan, Bharatiya Shiksha ki Samasyan ; Shiksha men Mapan aur Mulyankan, Samanya Manovigyan, Shiksha Darshan, Mahau Paschini Shiksha Shastri, Navin Shiksha Siddhanta*, etc. Add. Vill. Onnau, P.O. Lala Bazaar, Distt. Pratapgarh (U.P.).

Pant, M.C. : Professor and Head of the Department of Science Education, NCERT. M. Sc., D. Phil. Chemistry (Allahabad). Exp. Chemistry teaching in University ; Inspector of schools ; Under Secretary to the Government of Uttar Pradesh, Education Department ; Field Adviser, NCERT ; participated in many international conferences on teaching of science and contributed papers ; visited U.S.A., U.K. and U.S.S.R. to study the problems of science teaching. Pub. Joint author of many text-

books developed by the NCERT. Add. Z-1A, Hauz Khas, New Delhi.

Paranjpyc, Raghunath Purushottam (1876-1966): Took a prominent part in social, political and educational movements in Bombay Presidency; received his education at Fergusson College, Poona; served as Professor of Mathematics and Principal at the same institution; was a Minister in erstwhile Bombay State; worked for a few years as India's High Commissioner in Australia.

Parasnis, Narhar Ramchandra (b. 1908): Principal, Secondary Training College Bombay since 1962. M.A., B.T. (Bombay); T.D. (London), Ph. D. (Bombay). Exp. Lecturer in Education S.T. College Bombay 1939-59; Principal S.M. Teachers College Kolhapur 1959-61; Government Post-Graduate Basic Training College Amravati 1961-62. Pub. *A New Approach to Sanskrit*, and *A Cultural History of India*.

Parikh, Ghanshyambhai, B.: Principal, Secondary Teachers Training College, Ashram Road, Ahmedabad. B. A. (Hons.), S.T.C., M. Ed. Lecturer and method master of English at Prakash College of Education, Ahmedabad 1962-64; Professor of Education and Principal since 1964. Pub. *Lotus English Readers* and *Easy English Dictionary*.

Pascricha, Krishna (Miss) (b. 1913): Director of Education, Himachal Pradesh, Simla, since 1966. M.A. (Maths.), B.T., M. A. Edn. (London). Exp. Lecturer and Sr. Lecturer Maths. 1937-53; Sr. Lecturer Education 1953-56; Principal, Degree College 1956-61. Principal, Training College 1961-66; visited U.K., France, Germany and other European countries.

Patanchala Kapya: see under 'Great Teachers of Ancient India'.

Patel, Manibhai Shivabhai (b. 1910): UNESCO Expert in Asian Institute for Teacher Educators, University of the Philippines, Quezon city. M.A., Ph. D., T.D. (London), Diploma in Linguistics (Edinburgh). Exp. 22 years as Lecturer, Reader, Professor. Pub. *Teaching of English as a Foreign Language*. Add. 3, Alkapuri, Baroda-5, Gujarat.

Phatak, Pramila (Mrs.) (b. 1915): Reader Child Development Department, Baroda University since 1965. B.A., M. Ed., Ph. D. Exp. University Lecturer 1946-61; Reader Educational Psychology 1961-64; on deputation to Child Development Department, Faculty of Home Science, Baroda University 1964; visited U.S.A. Pub. *Directions for using Phatak's Draw-a-Man Scale for Indian Children*, *Children's Drawings, a research Report on 'Explora-*

tory Longitudinal Studies of Children in the University Experimental School Grades I and IV, visited U.S.A. Add. Opp. Babajipura Police Gate, Baroda (Gujarat).

Phule, Jotiba Govindrao: see under 'World Educators and Educationists'.

Pillai, K. Sivadasan: Lecturer, Department of Education, University of Kerala. B.Sc., B.T., M.A., M. Ed., Ph. D. Exp. 8 years in a High School, over 5 years as Research Assistant and Research Fellow in NCERT and U.G.C. Schemes, 2 years as Lecturer in the University. Pub. *Measurement and Evaluation in Education and Creativity in Education*. Add. Sivadasamanangalam, Kadavoor, Perimad, P.O. Quilon, Kerala.

Pippalada: see under 'Great Teachers of Ancient India'.

Prajnakaramati, Sri Mahapandita: see under 'Great Teachers of Ancient India'.

Prasad, Mahendra (b. 1911): Director, Sikshak Sarvodaya Ashram, Ranchi, since 1964. M.A. Diploma Education. Exp. Teacher S.S. High School Khunti 1943-44; Headmaster of various schools in Ranchi 1944-62; Principal, Doranda College, 1962-64; visited China; Teacher representative, Bihar Legislative Council. Add. Sikshak Sarvodaya Ashram, Ranchi.

Pravahana Jaivali: see under 'Great Teachers of Ancient India'.

Prem Nath (b. 1917): Professor and Head, Department of Philosophy, Punjab University, Chandigarh. B.A. (Hons.), M.A. Philosophy, Ph. D. awarded Unesco Fellowship in 1961 for the Study of American Culture in the U.S.A., attended East-West Philosophers Conference, Hawaii University 1964; visiting Professor World Campus Afloat Chapman College, Orange, California, U.S.A., 1967-69; Honorary Director, Unesco Centre, Punjab University, Chandigarh. Pub. *The Bases of Education. The Vision of Education and Towards Universal Humanism*.

Purandare, Saraswati Anant (Mrs.) (b. 1914): Principal, Government Basic Training College, Aurangabad (Maharashtra) since 1963. D.P. Ed., M.A. (Bombay), Ph. D. (Poona). Exp. Teacher High Schools 1941-51; Inspecting Officer of Schools 1952-58; Lecturer in Education in colleges 1959-63. Pub. *Dev Manus, Shabrichi Bore and The Women (a Marathi Novel)*. Add. 1898, Sadashiv Peth, Natubaug, Poona.

Puranik, G.A.: Principal, University Training College, Nagpur. Exp. 24 years; Dean, Faculty of Education, Nagpur University, Nagpur; President, Maharashtra State Federation of Drawing Teachers' Association,

President, Dharampeth Education Society, Nagpur. Add. 'Amrut' Dharampeth, Nagpur.
Purohit, Gopal Lal (b. 1910) : Principal S.S.G. Pareek College, Jaipur. M.A., B.T. Exp. Joined as a teacher in the High School in 1931 ;

working as Principal since 1943. Pub. *History for High Schools*.

Purushottamadeva : see under 'World Educators and Educationists'.

R

Radhakrishnan, Sarvapalli : see under 'World Educators and Educationists'.

Raghunandanadasa Raya : see under 'World Educators and Educationists'.

Raghunatha Siromani : see under 'World Educators and Educationists'.

Raikva : see under 'Great Teachers of Ancient India'.

Rajalakshmi Muralidharan (Mrs.) : Reader, Dept. of Educational Psychology and Foundations of Education, NCERT, since 1963. M.A., M.Litt., Ph.D. Exp. Counsellor, Bureau of Educational Services, Trivandrum 1960-61 ; Lecturer in Child Development and Childhood Education, Lady Irwin College, Delhi 1961-63 ; President, Indian Association for Pre-School Education. Pub. *Guide-booklets for Nursery School Teachers* ; *Systems of Pre-school Education in India* ; a large number of articles published in educational journals.

Rajkhona, Suresh Chandra (b. 1913) : Director of Public Instruction, Assam, for a number of years; M.A., M.A. Edn. (Institute of Edn., London). Exp. Taught History, Cotton College, Gauhati 1937-46 ; Asstt. Director of Public Instruction 1949 ; Divisional Inspector of Schools 1950 ; Special Officer, Secondary Education 1954 ; Additional Director of Public Instruction 1955 ; Director of Public Instruction 1959 ; member, Study Team of Secondary Education to U.K., U.S.A. and other countries 1953-54. Add. Laehumierre, Shillong.

Ramachandran, G. (b. 1905) : Director Gandhigram, Madurai District ; graduated from Visva-Bharati ; Santiniketan in 1924. Exp. Assistant Secretary Hindustani Talimi Sangh 1940-43 ; Education Adviser to Madras Government for three years ; Chairman Basic Education Assessment Committee, Government of India ; Minister in first Congress Ministry in Kerala ; courted jail several times during Freedom Movement ; nominated to Rajya Sabha in 1964 ; Jt. Editor, *The Indian Express*, Madras. Pub. *Orienting All Schools to the Basic Pattern, Glimpses of Indian Renaissance, A Guide to Gram Seva*, etc.

Ramji, Marni Tata : Reader Dept. of Pre-primary and Primary Education, NCERT, New Delhi. M.A., M. Ed., Ph. D. in Education. Exp. 12 years of teaching and research in English and education. Pub. *Personality Development Course (Telugu)* and *The Concept of Personality in the Educational Thought of Mahatma Gandhi*.

Ramkrishna, Aphale, Rajaram : Prof. of Education, S.M.T.T. College, Kolhapur. B.A. (Hons.), B.T., M. Ed., D. P. Ed., D. B. Ed. Exp. 14 years as a teacher ; 2 years as Headmaster, Principal, Primary Training College for 2 years, lecturer 2 years, prof. 4 years. Pub. *Adhyapan-achi Mool Tatve* (in Marathi) and *Educational Psychology*.

Ranade, M.G. : see under 'World Educators and Educationists'.

Ranade, Shridhar Nilkanth (b. 1924) : Principal, Delhi School of Social Work, University of Delhi. Edn. M.A. History, Dip. Social Service Administration ; M. S. (Columbia University). Exp. Assistant Professor 1947-50, Senior Lecturer 1950-56 ; Unesco Technical Assistance Expert in Egypt 1956-58 ; Senior Lecturer and Head of the Social Work Department 1958-62, Principal since 1962 ; Member of various national and international organizations. Pub. Member of the Editorial Committee *Encyclopaedia of Social Work in India*, several research papers and articles.

Rao, B. Surya : Principal, M. R. Training College, Vizianagram ; M.A. (Pure Mathematics), B. Ed. Exp. 16 years in secondary schools, 24 years as Lecturer, Head of the Department and Principal in training colleges in Andhra Pradesh. Pub. include *Current Problems in Indian Education*, *Sarvasreyamu* (Translation into Telugu of *UNTO the Last* by John Ruskin). *Sasanol-langharram* (Tr. into Telugu of *Civil Disobedience* by Henry David Thoreau), *Visva Prema* (Tr. into Telugu of *Letter to a Hindu* by Tolstoy).

Rao, C.S. Subba : Field Adviser Dept. of Teacher Education NCERT, New Delhi. M.A., M.Ed., Ph.D., Dip. in Basic Education. Exp. Inspector of Primary and Basic Schools, Lecturer, Basic

Training College in Andhra Pradesh 1949-56 ; Lecturer College of Education, Osmania University 1957-64. Visited U.K. and U.S.A. Pub. *Basic Education in Principles, Basic Education in Practice, Basic Education in Andhra Pradesh, Primary Teacher Education Curriculum*.

Raoo, A. : Field Adviser, Dept. of Teacher Education, NCERT since 1963. Edn. M.A., Ed. D. (Columbia) ; Dip. Ed. (London). Exp. Teacher 1944-49 ; Lecturer in Education, Jamia Millia Univ. 1957-58 ; Co-ordinator Extension Services Dept., Aligarh Univ. 1958-63 ; Deputy Director, Dept. of Field Services, NCERT in 1966. Pub. *Organisation and Administration of the Elementary School. Education To-day and To-morrow, Developing Reading Habits in Students* ; Editor of 'Newsletter' and 'Teacher Speaks'.

Rao, V.K.R.V. : see under 'World Educators and Educationists'.

Ratnakara Santi, Mahacharya : see under 'Great Teachers of Ancient India'.

Ratnakirti, Mahapandita : see under 'Great Teachers of Ancient India'.

Ratnavajra, Mahapandita : see under 'Great Teachers of Ancient India'.

Raulkar, Jageshwar Damodar (b. 1914) : Principal, Govt. College of Education, Nanded, Maharashtra State. M. A., M. Ed., Advanced Training in Edn. Adm. (U.S.A.) 1960-62. Exp. Varied experience as teacher in private and government schools, headmaster and lecturer in a B.T. College ; served as District Inspector of Schools and Education Officer Zila Parishad. Pub. Many school textbooks. Add. P.O. Nerpinglai, Distt. Amravati, Vidarbha, Maharashtra.

Rawat, Dalip Singh : Head of Dept., Pre-Primary and Primary Education, NCERT, New Delhi. Edn. M.Sc., M.A. Edn. (Birmingham) ; Professional Training (Columbia). Exp. Lecturer Secondary Trg. Institute for 9 years ; Field Adviser in NCERT for 6 years. Pub. *Research in Class Room* ; Co-author of *Teaching Reading—A Challenge, Saral Manovigyan, Educational Wastage in Primary School ; Measurement, Evaluation and Statistics in Education, Shiksha Manovigyan ki Nai Rup Rekha, Prayogatmak Manovigyan, Shikshan-Mapan ki Nai Rup Rekha, Vigyan Shikshan, Ganit Shikshan, Shikshan Mapan ka Etilas, Shikshan Sidhant ki Nai Rup Rekha*.

Reddy, Dinnapati Sadasiva (b. 1897) : Formerly Vice-Chancellor, Osmania University for a number of years. B.A. (Hons.), M. A. (Oxford), Dip. in Anthropology (Oxford). Exp. Joined Madras Educational Service in 1923 and served in various capacities for over 30 years ; Prof.

and Principal of a number of Govt. Colleges and became the Director of Public Instruction 1946-52 ; head of Unesco Technical Assistance Mission to Liberia 1952 ; Director of Public Instruction, Andhra Pradesh, 1954-57 ; has been chairman and member of a number of committees appointed by State and Central Governments.

Reddi, P. Antony (b. 1908) : Member, Lok Sabha ; M.A., L.T. Exp. Teacher, Headmaster, Principal, Nirmala English Residential School, M.P.R. Post, Anantapur ; President, Physical Education Association, Andhra Pradesh since 1959, Member of the Senate of Andhra University and S.V. University for five years ; Member of three committees constituted by the Andhra Government to inquire into the problems connected with Educational Development. Add. P. Yaleni P.O., Anantapur Distt. (A.P.).

Roy, B.C. (b. 1918) : Principal Kishori Raman Training College, Mathura (U.P.) ; M.Sc. Maths., B.T. Exp. Lecturer K.R. Inter Collge Mathura 1945-58 ; Lecturer K.R. Trg. College Mathura 1958-67. Pub. a large number of textbooks on Maths. for Intermediate Classes, and on Physics for High School.

Roy, Nikhli Ranjan : Principal, New Barrackpore College of Education, W. Bengal ; M.A., B.Ed. Exp. Twenty-seven years of service in the Edn. Dept., West Bengal as Chief Inspector Social Education, and as Asstt. Director of Public Instruction. Pub. *Siksha Bichitra, Samaj Shiksha, Adult Education in India and Abroad and Education in India Today*. Add. 5, Nandapara Road, Calcutta-57.

Roy, Pankaj Kumar (b. 1916) : Principal, Central Institute of Education Delhi, since 1963 ; M.A. (Cal.) ; Diploma in Edn. (Edinburgh Univ.) 1946 ; M. Ed. (Edinburgh Univ.) 1947. Exp. Lecturer Central Institute of Education 1948-55, Co-ordinator, Extension Services C.I.E. 1955-57 ; Reader in Education C.I.E. 1957-63 ; Vice-Principal C.I.E. 1962-63 ; Dean Faculty of Education, Univ. of Delhi since 1963 ; Member, Indian Association of Teacher Education ; British Psychological Society, American Educational Research Association, National Council of Mental Measurement (U.S.A.) ; visited U.K., U.S.A., France, Germany and other European countries ; attended Unesco Conference on Teacher Education at Manila in 1963. Pub. *Selection for Secondary Education in England, Factorial Analysis of Moray House Tests, An Investigation into the Opinion of Arithmetic Teachers and Education and Economic Growth*. Add. 33-A. Chhatra Marg, Delhi.

Roy, Raja Ram Mohan : see under 'World Educators and Educationists'.

Roy, Tamashranjan : Principal, Ramakrishna Mission Boys' Home Basic Training College, P.O. Rahara, 24 Parganas ; M. Sc., B.T. Exp. Teaching and inspection for about 40 years. Pub. (in Bengali) *Yngacharya Vivekananda, Vivekanander Sikshachita, Swami Vivekananda*

(Drama), *Sreema Saradamani, Bharat Bhagini Nivedita* ; (in English) *Sree Ramakrishna and World Culture*.

Rumi, Maalana Jalaluddin : see under 'World Educators and Educationists'.

S

Sadler, Michael : see under 'World Educators and Educationists'.

Safaya, Raghunath : Asstt. Director Evaluation, Punjab Education Directorate. M. A. Hindi and Sanskrit, B.T., M. Ed. (Delhi), Ph. D. (Punjab). Exp. 6 years in schools, 4 years in Arts Colleges, 14 years in Training Colleges including 6½ years to M. Ed. classes, Member of Punjab University Senate, Academic Council, and Boards of Studies in Sanskrit and Education. Pub. includes *Current Problems in Indian Education, Hindi Shikshan Vidhi, Sanskrit Shikshan Vidhi, Development of Educational Theory and Practice, Educational Psychology* ; articles in educational journals. Add. 498, Sector 15-A, Chandigarh.

Sahaya, Shyamnandan (b. 1909) : Principal, Teachers Training College, Ranchi, and Dean Faculty of Education, Ranchi University since 1961. M.A., M. Ed., Dip. Library Science, B. Litt. (Dublin). Exp. School Teacher 1934-1947, Lecturer English and Education Gaya College, Gaya 1947-48 ; Asstt. Prof. Patna Training College and Patna University 1949-61, visited U.K., France, Arabia and Egypt. Pub. *The Teaching of English in Our Schools, The Teaching of English in India*.

Sahni, Manmohan Singh : Principal, Jawaharlal Nehru Teachers' Training College, Kota; M.A., M.Ed.; professional experience of about 18 years. Pub. *Examination Marks, Their Use and Interpretations*.

Saiyidain, K.G. : see under 'World Educators and Educationists'.

Sakayana : see under 'Great Teachers of Ancient India'.

Salamatullah (b. 1913) : Principal, Teachers College, Jamia Millia Islamia, Jamia Nagar, New Delhi. M.Sc. Math., B.T. (Aligarh), Ed.D. (Columbia University) 1946-48 as Watumall Foundation Fellow. Exp. Was offered membership of the U.S.A. Kappa Delta Pi (Fraternity) 1947, and of the Executive Committee of Indian Psychological Association (Delhi Branch)

1958; Member of the Executive Committee of the Indian Association of Teacher Educators 1966. Pub. *Ham Kaise Padhayen* (Urdu), *Examination in India, Basic Way to Arithmetic, Bunyadi Ustad Ke Liye* (Urdu), *Can Education Do It, Thoughts on Basic Education, Basic Education : Retrospect and Prospect*.

Samant, Bhagawant Bhikaji (b. 1906) : Research worker. B. A. (Hons.), B. T., Ph. D. Exp. Senior Science and Mathematics teacher for a few years, Prof. of Education including Principalship for more than 15 years, Education Officer for about 3 years ; Research and Co-ordination Officer, Education Dept., Govt. of Bombay, for six years. Officer on Special Duty for All India Educational Survey, Ministry of Education for about 3 years; at present engaged in educational and psychological research. Pub. *Mental Testing, Mental Measurement, Bibliography of Marathi Books for School Libraries, Bibliography of Marathi Books on Education and Psychology, Brochure on All India Educational Survey*. Add. Shree Niwas, Jahangir Vimaladal Road, 746, Parsi Colony, Dadar, Bombay.

Samuel, K. : Principal, Peet Memorial Training College, Mavelikara, Kerala. M.A., B.T., one year's advanced study in English in the University of Colorado (U.S.A.). Experience of 20 years.

Sampurnanand (Dr.) (1890-1969) : Philosopher ; educator, politician and a renowned scholar of history, philosophy, sociology, astronomy, mathematics, literature and languages including English, Sanskrit, Persian, French, Hindi and Urdu, B.Sc., L.T. Exp. Headmaster Dungar College, Bikaner 1918-21, Prof. Kashi Vidya-pith ; Education Minister of U.P. for a number of years ; Chief Minister (U.P.) (1954-59) ; Governor of Rajasthan (1962-67). Pub. 35 books on different topics ; first to write science fiction in Hindi.

Santarakshita : see under 'Great Teachers of Ancient India'.

Sanyal, Nikhil Kumar : Field Adviser, Dept. of Science Education, NCERT. M. Sc. Chemistry, L.T., M. S. Education (U.S.A.). Exp. High School Teaching 1942-47, Intermediate 1947-54 and 1958-59 ; Degree College 1954-57 ; Training College 1959-62 ; Curriculum Development, Field Work and Textbook Writing in NCERT since 1962 ; visited U.S.A. under Fulbright Educational Programme for Advanced Studies in U.S.A. (1957-58) and U.S.S.R. under a Unesco Fellowship Programme 1965. Pub. Author and co-author of 9 school textbooks. *Report on Teaching Science* ; *Vigyan Shikshan* (Hindi). Add. 6/12, Kasia Road, Gorakhpur, U.P.

Saraf, S. N. (b. 1924) : Director (Education) Planning Commission since 1963 ; B.A. (Hons.), M.A. History, M. Ed., Ph. D. Exp. Over 24 years, about 8 years of teaching and administrative experience and about 16 years of experience in educational planning and administration at the national level ; Headmaster of a public school in Srinagar 1945-46 ; Instructor and Lecturer in Govt. Teachers' Training College, Srinagar 1946-49 ; Instructor, Govt. Teachers' Training School, Delhi ; Lecturer in History at the Central Institute of Education Delhi 1951-52 ; Research Officer, Planning Commission 1953-55 ; Senior Research Officer 1955-59 ; Assistant Chief 1959-63. Add. D-55/A, Hauz Khas, New Delhi-16.

Sarkar, Sunil Chandra (b. 1907) : Head of the Dept. of Education, Visva-Bharati University ; M.A., B.T. Exp. Senior Lecturer in English, Visva-Bharati ; Principal, Vinaya Bhavan Sec. Teachers' Trg. College for many years. Pub. *Tagore's Education*, and *Ideas and Ways in Education* (in Bengali).

Sastri, Srinivasa (1869-1947) : A humanitarian who combined the breadth of a statesman with the depth of a scholar and the fervour of an evangelist ; started his career as a teacher and worked for many years as the Headmaster of the Hindu High School, Triplicane, in the city of Madras ; joined the Servants of India Society in 1907 ; made his mark as a member of the Madras Legislative Council and later of the Imperial Legislative Council and of the Council of State ; twice became the Vice-Chancellor of the Annamalai.

Satyakama Jabala : see under 'Great Teachers of Ancient India'.

Schwartz : see under 'World Educators and Educationists'.

Sen, Keshub Chander : see under 'World Educators and Educationists'.

Sen, Triguna (b. 1905) : Minister for Petro-

chemicals and Mines and Metals, Government of India, since Feb. 1969 ; former Minister of Education ; graduated in Mechanical Engineering 1926 ; Doctorate in Engineering, Technical University, Munich. Exp. Started career as an Instructor in College of Engineering and Technology, Jadavpur ; worked in various firms and corporations in Germany ; took active part in freedom movement in India ; visited U.S.A. and Europe to study system of education in universities in 1957 ; Germany, to study administration of universities, France, to study working of higher secondary schools ; studied the system of university and technical education of Czechoslovakia ; President of Inter-University Board of India and Ceylon 1963 ; Vice-Chancellor, Banaras Hindu University, 1966-67 ; Minister for Education, Govt. of India 1967-69 ; associated with several higher educational institutions ; was awarded Padma Bhushan in 1965.

Sethi, R.L. (Mrs.) : Principal, D.A.V. College of Education for Women, Lahgarh Gate, Amritsar ; M. A., B. T. ; Member, Senate Punjab University 1964 ; Member, Board of Studies in Education (Punjab).

Shah, Rajnikant Shankarlal : Principal, Madhyamik Shikshan Mahavidyalaya, 113 Vidyanagar Society, Bhavnagar ; M.A., M. Ed. Exp. 14 years in high schools ; 3 years as a lecturer in Faculty of Edn. ; M.S. University, Baroda ; 4 years at D.G. Teachers College, Aliabada (Gujarat) ; visited U.S.A. as an exchange teacher at Lafayette High School, Ellisville, Missouri State 1966-67.

Shankershet, Jagannath : see under 'World Educators and Educationists'.

Sharma, A.P. (b. 1923) : officiating Head of the Dept. of Education, N.A.S. College, Meerut. M.A., M. Ed. Pub. *The Teaching of Social Studies and Civics*, *Problems of Indian Education*, *The Teaching of Economics*.

Sharma, A.R. (b. 1926) : Principal, Sohan Lal College of Education, Ambala City since 1964 ; B.T., M. Ed. Exp. Worked as Lecturer in K.R. Teachers' Training College Mathura ; Head of the Education Dept., N.A.S. College, Meerut 1958-1964 ; Fellow of the Punjab University ; Member of the Faculty of Education and Board of Studies in Education ; Joint Secretary of All India Association of Teacher Educators, New Delhi. Pub. *School Organisation*, *Experimental Psychology*, *Teaching of Mathematics*, *Educational and Physical Measurements*, *Current Problems of Indian Education*.

Sharma, Atmananda : Reader in Guidance and Psychology, Dept. of Educational Psychology

and Foundations of Education NCERT. M.A. Psychology and Maths., L.T., Dip. in Guidance, Ph. D. Psychology. Exp. Lecturer for about 5 years in Teachers' Training College; District Psychologist for about 6 years in the U.P. Psychological Service; Senior Scientific Officer in the Directorate of Psychological Research R & D Organization, Min. of Defence for 4 years; Reader for 7 years. Pub. include 20 research articles and reports; one battery of tests, one book—*Experimental Psychology for Training Colleges* and a large number of general articles. Areas of Specialization are Guidance and Counselling, Psychometry, and Sociometry. Add. 26/46, Shakti Nagar, Delhi.

Sharma, Dewan Chand (1896-1969): Member, Lok Sabha 1951-69; Retired Hony. Professor and Head of the Department of English, Panjab University; Dean of Language Faculty, Panjab University; Member Banaras Hindu University Court and Advisory Board of Education, Punjab; President, All India Federation of Educational Associations 1955-69. Pub. *Men and Manners, Our Indian Heritage, Life of Mahatma Gandhi, Life of Kasturba*.

Sharma T.R. (b. 1925): Asstt. Director of Education since 1965; B. Sc., M.A. (M. Ed.), Dip. in Audio-Visual Education, Cert. in Lib. Sc.; Head of the Department of Educational Research, Punjabi University, Patiala. Exp. Started as a science teacher in a middle school; Co-ordinator Dept. of Extension Services Chandigarh, 1957-61. Pub. *Educational Psychology, Teaching of Mathematics for Elementary School Children, Teaching of Science for Elementary School Children, Teaching of Mother Tongue, Some Major Problems of Indian Education, Life of Ramkrishna Paramhans*.

Sher Singh (b. 1917): Member Lok Sabha; M.A. Lecturer M. S. J. College, Bharatpur and Jat College Rohtak; Minister of Irrigation and Power in Punjab Cabinet 1956-57; Chancellor, Gurukul Jhajjar; Member, Syndicate of Gurukul Kangri University; Minister of State in the Ministry of Education; visited U.S.S.R., U.S.A., Japan, Hong Kong, U.K. and other European countries. Add. Village Baghpur, P.O. Beri, Tehsil Jhajjar, District Rohtak.

Shitole, Chaturbhuj Bankat (b. 1929): Principal, Shankarrao Nimbalkar Adhyapak Vidyalaya, Barsi, Distt. Sholapur (Maharashtra) since 1956 B. Sc. Agri., B.T., M. Ed., M.A. (Poona). Exp. Headmaster Janta Vidyalaya Vedsa 1952-54; Headmaster Maharashtra Vidyalaya, Barsi, 1954-56. Pub. *Sheti Shastra Pravesh* (series of 7 books on Agriculture).

Shraddhanand, Swami: Sec under 'World Edu-

cators and Educationists'.

Shridevi, S.: Principal of the University College for Women, Hyderabad, Andhra Pradesh. Edn. M.A., M. Ed., Ph. D. (Columbia University); recipient of the Watamull Special Award 1946, the Deans Scholarship at Teachers' College 1947 and Davella Mills Fellowship 1948, while a research student at Columbia University; Smith-Mundt Visiting Professor at Atlanta University, Ga, U.S.A. 1951-52; Member of the Wheat Loan Team of Educators to U.S.A. to study the system of examinations obtaining in American Universities; visited some of the Women's Colleges in U.S.A. under the auspices of the U.S.—India Women's Colleges Programme; President of the Federation of the University Women (1955-56). Pub. *The United States of America Today*, and a number of research papers.

Shrimali, Kalu Ram (b. 1909): Vice-Chancellor, Banaras Hindu University; M. A. Philosophy (Banaras), M.A. Experimental Psychology (Calcutta). Ph. D. (Columbia). Exp. Headmaster Vidya Bhawan, Udaipur 1931-42; Principal, Vidya Bhawan Teachers Training College, Udaipur 1942-54; Member, Secondary Education Commission 1952-53; Member, Rural Higher Education Committee 1954-55; Parliamentary Secretary, Ministry of Education Government of India 1953-55; Deputy Minister for Education 1955-57; Minister for State in the Ministry of Education and Scientific Research 1957-58; Minister for Education, Government of India for a number of years; Vice-Chancellor, Mysore University for about 5 years. Pub. *The Wardha Scheme, Adventures in Education, Education in Changing India, Bachchon ki Kuch Samasyayen* (Hindi), *Shiksha aur Bhartiya Loktantra* (Hindi).

Shriman Narayan (b. 1912): Governor of Gujarat; a close associate of Gandhiji who worked at Wardha and Sevagram and popularised Basic System of Education: Governor, Gujarat State. Exp. Convener of the National Education Conference which was presided over by Gandhiji in 1937 and which gave a definite shape to the Basic System of Education; founder Principal of the Seksaria College of Commerce and Economics, Wardha; Dean of the Faculty of Commerce, Nagpur University; President of the Jaipur Session of the All India Educational Conference in 1956; Member of the Parliament 1952-57. Pub. author of many books including books entitled *On Education, The Medium of Instruction*. Add. Raj Bhawan, Ahmedabad.

Shukla, Jeys Shankar Karunashanker: Joint

Director, NCERT and Head of the Dept. of Teacher Education. B.A. (Hons.) English, M.A. English, B.T., M.A. Edn. (London Univ.). Exp. 3 years as a Teacher in High School 1937-39, Lecturer in Education 1940-49; Inspector of Schools 1948-49, Principal, Graduates' Basic Training College 1949-54; Prof. of Education 1954-56, Director National Institute of Basic Education 1956-63; Principal Regional College of Education 1962-67, Member of many State, University and Central Government Committees for developing educational programmes. Pub. *Studies in the Social Psychology of Adolescence* (Routledge and Kegan Paul, London, 1951), (joint author); *Practical Class Room Research by Teachers* (joint author with S.M. Corey); several articles and papers published in educational periodicals.

Shukla, Lalji Ram : Director, Kashi Manovigyan Shala, Varanasi. M.A., B.T. Exp. Formerly lecturer in Banaras Hindu Univ., one of the early writers on educational psychology and educational theory. Pub. (in Hindi) *Shiksha Vigyan, Bal Manovigyan, Bal Manovikar, Bal Shiksha, Navin Manovigyan*, (in English) *Educational Psychology*.

Shukla, Nandlal N.S. (b. 1911) : Principal, Sadhana School of Educational Research and Training, Julu Road, Bombay. B.Sc., B.T., M. Ed., Ph. D. Exp. Secondary Teacher 1930-49; Lecturer, Education and Psychology, Baroda University 1950-57; Director, Psychological Research Institute, Bombay 1957-62; Member, Bombay City Council for Child Welfare and National Association of Teachers Educators. Pub. *Construction and Standardization of Achievement Tests, Case Studies in Industries, Teaching of Mathematics and A Survey of School Children of Bombay*.

Shukla, P.D. : Chairman, Central Board of Secondary Education, Delhi. M.A. Maths. (Lucknow), Ph.D.; formerly Joint Educational Adviser, Ministry of Education, Government of India, visited Indonesia, Japan, Philippines, Hawaii, U.S.A. to study the educational system; studied the system of correspondence course in Australia in 1961; services were placed at the disposal of UNESCO to advise on preparation of the educational development plan for Liberia (West Africa); attended the III Commonwealth Education Conference held in Ottawa in August 1964; led the delegation in the field of Adult Education in the Federal Republic of Germany; Hony. Secretary-Treasurer of the National Foundation for Teachers' Welfare.

Shukla, Ram Chandra : Reader of Painting, Faculty of Music and Fine Arts, Banaras

Hindu University. B.T., L.T., M. Ed., P. Dip. Exp. Art Instructor and Lecturer in Education in the Dept. of Education, Banaras Hindu Univ. for about 20 years. Pub. *Shilpa Lok, Rekhwali, Naveen Bhartiya Chittrakala, Chittrakala ka Rasaswadan, Kala ka Darshan*. Add. G-35 New Colony, Banaras Hindu University, Varanasi.

Shukla, Suresh Chandra : Prof. of Education, Jamia Millia Islamia, New Delhi. B.Sc., M. Ed., Ph. D. Exp. 10 years as teacher-educator and over 4 years at Asian Institute of Educational Planning and Administration, New Delhi. Pub. *Elementary Education in British India during later Nineteenth Century, The Context of Education in Developing Countries, Training Educational Planners* (in the World Year Book of Education, 1967); contributed numerous articles in educational journals. Add. K-11, Green Park, New Delhi.

Sidhu, Savitri (Mrs.) : Reader, Department of Teaching Aids, NCERT. Exp. 20 years experience of teaching and administration in schools as a teacher, Principal, school inspectress and education officer; 12 years experience of arranging in-service programmes for teachers at all levels. Pub. Pamphlets including *Plasticraft for Pictorial Build-up, Teaching Art through Flannel Graph, Classroom Games for the Teaching of English*; produced several flannelgraph sets for the teaching of Mathematics, Social Studies and Science. Add. B-14, Jangpura Extension, New Delhi-14.

Silabhadra : see under 'Great Teachers of Ancient India'.

Singh, Rajendra Pal : Reader in comparative Education, NCERT. M.A. (London), Ph. D. (London). Exp. 4 years as Principal K.R. Teachers Training College Mathura; 4 years in the NIE. Pub. *Nehru on Education, Radhakrishnan: Portrait of an Educationist, Zakir Husain: Dynamics of Indigenous Education, The Indian Teacher, Professional Education in Ancient and Medieval India*. Add. M-9, Green Park Ext., New Delhi.

Singh, Ram Karan (b. 1904) : Vice-Chancellor, Meerut University since July 1966; M.A., LL.B., D. Ed. (Harvard). Exp. Practised Law 1927-30; Lecturer in Economics 1930-34; Principal B.R. College Agra 1934-64; Educational Adviser to Ministry of Community Development, Govt. of India 1956-57, Director Balwant Vidyapeeth Rural Higher Institute, Bichpuri (Agra). Add. Civil Lines, Agra.

Singh, Sampuran (b. 1900) : Principal, Ramgarhia Training College, Phagwara. M.A. Teachers' Dip. (London); worked in Govt.

College, Lyallpur, 1940-45; Central Training College, Lahore, 1945-47; Deputy Divisional Inspector of Schools, Ambala Division, 1951-55; visited U.K., France and other European countries.

Singhal, R.P. (b. 1928): Secretary, Central Board of Secondary Education, Indraprastha Estate, New Delhi. M.Com., LL.B., Ph.D. Exp. about 20 years in the field of administration and examination; Superintendent (Examinations) and Assistant Registrar (Administration), University of Rajasthan (1954-62): Officer on Special Duty, Deputy Secretary and Secretary of the Central Board since 1965; Member of numerous professional organizations, attended and organized many educational conferences and seminars. Pub. *Improving Examinations, Quality in Education, Educational Standards, Elements of Business Methods, and Elements of Book-Keeping and Accountancy*; Editor 'Cenboosee News and Views'.

Sinha, Nanda Babu: Director of Education, Manipur, M.A. Eng. (Calcutta), 19 years experience in teaching and 11 years of administrative service. Pub. booklet on Bahai Religion.

Skyes, Marjorie (b. 1905): taught in England 1927-28, and in Bentinck High School for girls, Madras 1928-38; worked at Shantiniketan at the invitation of Rabindranath Tagore 1938-47; Prof. of English, Women's Christian College, Madras 1942-44; incharge of training programme for Basic Education and Shanti Sena at Sevagram, Wardha 1948-59. Pub. *The Story of Rabindranath Tagore*; translated into English several works of Acharya Vinoba Bhave. Add. Amaitih Aham, Kotagiri, P.O. Nilgiri Hills, S. India.

Sohoni, Govind Prabhakar: Editor, Maharashtra Educational Journal since 1957; B.A. (Hons.), LL.B., B.T. Exp. 20 years as a secondary teacher and 23 years as Headmaster of High Schools; Recipient of the Maharashtra State Awards for Teachers, 1963. Pub. *Fundamentals of Methods of Teaching and How to Teach Science*.

Solauki, Amar Singh B. (b. 1914): Principal, Sheth C. N. Graduate Basic Training College, Ahmedabad since 1964. B.A., B.T., M.Ed., Training in Basic Education, Sevagram, Wardha. Exp. 7 years in secondary school, 7 years in Govt. Primary Training Colleges, Lecturer for 14 years in Govt. Post-Graduate Training Colleges of the State. Pub. *Technique of Co-relation in Basic Education, Planning of Teaching in Basic Education*.

Somedeva: see under 'World Educators and

Educationists'.

Sri Prakasa (b. 1890): Statesman and educationist, educated at the Universities of Allahabad and Cambridge. Exp. Lecturer at Banaras Hindu University and Kashi Vidyapith, member of the Narendradeva Committee on Education (U.P.), member Constituent Assembly of India, Indian High Commissioner to Pakistan, Union Cabinet Minister, Governor of Assam, Madras, Bombay and Maharashtra, Chairman of the Moral and Religious Education Committee 1959. Pub. *Education in a Democracy*.

Srivastava, Anand Behari Lal: Statistician, Asian Institute of Educational Planning and Administration, Indraprastha Estate, New Delhi, since 1969. M.Sc., Ph.D. Statistics (Kharagpur). Exp. taught statistics at I.I.T. Kharagpur 1957-59; Prof. and Head of Statistics Deptt. of Meerut College 1959-63; Reader in NCERT 1963-69. Pub. Research papers in the area of statistical inference and psychometrics.

Srivastava, Anand Prakash: Principal, K. P. Training College, Allahabad. M.A., B.T. Teaching experience 35 years in Intermediate, Degree and Training Colleges. Pub. *Mighty Minds, Paragon of English Prose, Noble Men and Manners and The Immortal Mortals*.

Srivastava, Suraj Narayan: Principal Jialal Institute of Education, Ajmer. M.Sc. Chemistry (Allahabad), M.A. Philosophy (Agra), B.T., T.Dip., B.Ed. (Edinburgh).

Srivastava, Kanti Mohan: Head of Education Deptt., K.S. Saket Mahavidyalaya, Faizabad. M.A. Geog., M.Ed. Exp. Lecturer 3½ years, Head of the Education Deptt. 3 years. Pub. co-author *Siksha ka Manovigyanik Adhar*, articles in educational journals. Add. 670, Rath Haveli, Faizabad (U.P.).

Sthiramati: see under 'Great Teachers of Ancient India'.

Subhakara, Pandita: see under 'World Educators and Educationists'.

Sulochanan Nayar, K.: Lecturer in Philosophy, N.S.S. Hindu College, Changancherry, Kerala; M.A. Psychology, Ph.D. Pub. *Psychological Foundations of Education, A Battery of 14 Subtests of Intelligence, A Test of General Mental Ability, Kerala University Handwriting Scale for Malayalam*.

Sukhia, Surat Pyari (Mrs.) (b. 1911): Principal Women's Training College Agra, since 1947. M.A., T. Dip. (London). Visited U.K., Sweden and Germany. Pub. *Elements of Educational Research*.

T

Tagore, Rabindranath : see under 'World Educators and Educationists'.

Tandan, Kishan Chand : Principal, Nehru Shiksha Mahavidyalaya Gramotthan Vidyapeeth, Sangaria (Rajasthan) since 1965 ; M.A. Psychology, M. Ed. Exp. Lecturer K.R. Trg. College, Mathura ; Head of the Deptt. of Education, Digamber Jain College, Baraut for 4 years.

Taneja, V.B. (b. 1917) : Reader, Central Institute of Edn. Delhi. M. A., M. Ed. Exp. 13 years as lecturer, Evaluation Officer, D.E.P.S.E., Delhi 1958-61 ; Asstt. Director, Teachers' Trg. Punjab 1961-62 ; Principal, College of Edn. Kurukshetra for a number of years. Pub. *First Course in Guidance and Counselling*.

Taneja, V. R. (b. 1916) : Head of the Education Dept., Panjab Univ. ; M.A. Hist., M.Ed., M.A. Edn. Admn. (London) 1954. Exp. Principal, Govt. Post-Graduate Trg. College, Dharamsala, 1959-60 ; Principal Govt. Trg. Coll., Jullundur, 1960-63 ; Principal, Govt. Post-Graduate Basic Trg. Coll., Chandigarh, for a few years ; visited U. K., France, Italy and Egypt. Pub. *Educational Thought and Practice, Teaching of Social Studies and History of Education in India*.

Taponitya Pauru-Sishti : see under 'Great Teachers of Ancient India'.

Tara Chand (b. 1888) : M. A. (Alld.), D. Phil. (Oxon.). Exp. Prof. of History, Kayastha Pathshala College, Allahabad ; Principal, K. P. U. College (1925-45) ; Prof. of Politics, Allahabad University (1945-47) ; Vice-Chancellor, Allahabad University, 1947-48 ; Secretary and Educational Adviser, Union Ministry of Education 1948-51 ; President, Indian History Congress ; Ambassador to Iran, 1951-56. Hon. Prof., University of Tehran (Iran) ; Prof. Emeritu, Allahabad University ; Hon. Prof., Aligarh University, Member, Rajya Sabha 1958-68. Pub. *A Short History of the Indian People, Influence of Islam on Indian Culture, Growth of Islamic Thought in India, History of Eastern and Western Philosophy, History of the Freedom Movement in India, State and Society in the Mughal Period*. Add. 16, Stanley Road, Allahabad.

Tathagata Rakshita, Mahapandita : see under 'Great Teachers of Ancient India'.

Tawde, Sitaram Ramji (b. 1895) : Formerly Dean of Faculty of Education, Shivaji Univ. 1962-68 ; M.A. (Columbia) ; Dip. in Teacher Edn. (Columbia). Dip. in Edn. (Oxford), M.R.S.T. (London). Exp. More than 37 years as teacher, lecturer, principal of training colleges and Divisional Educational Inspector ; member,

Bombay Univ. Senate, Board of Primary Edn. and Karnatak Univ. Senate. Add. Ramji Sadan, Shahpuri, Kolhapur, Maharashtra.

Tewari, Bal Govind (b. 1909) : Director, State Inst. of Education (Rajasthan) since 1963, B.Sc., M.A., B.T. Exp. Teacher High Schools 1930-40 ; Inspector of Schools, Rajasthan 1948-56 ; Deputy Director of Education (Rajasthan) 1956-60 ; Principal, Govt. Teachers Training College, Bikaner, 1960-63.

Tewari, Devendra Datta : Director Govt. Central Pedagogical Institute and Deputy Director of Education (Trg.) U.P. Allahabad, M.A., M.Ed., D. Phil. Exp. Member of a large number of State and National Organizations in the field of education ; visited U.S.A. and other countries in 1964 to study their educational systems. Add. 461, Mumfordganj, Allahabad.

Thomas, J. P. : Principal, YMCA College of Physical Education, Nandanam, Madras ; B.A., B.T., Dip. Physical Edn. ; M. Ed., Ed. D. (Boston). Exp. Lecturer YMCA College of Physical Education, Madras 1947-60 ; Adviser to Govt. of India, N. Delhi 1960-1961 ; Principal, YMCA College of Physical Education, Madras. Pub. *Organisation of Physical Education ; Physical Education Lessons ; Let us Coach Soccer*.

Trivedi, Harbhai (b. 1892) : Pro-Vice-Chancellor, Saurashtra University, Bhavnagar. Exp. Founder President, Home-School, Saraswati Vidya Mandal, Jeevan Sadhana ; has presided over several educational conferences. Pub. A large number of books on education and educational psychology ; editor, '*Nootan Shikshani*', Surat and *Ghar Shala*, Bhavnagar. Add. c/o Saurashtra University, Bhavnagar.

Trivedi, Manubhai Dalpatram : Principal, P. D. Malaviya Graduate Teachers' College, Rajkot, B.Sc. (Hons.), B.T., M.Ed., D.G.C. Exp. 10 years in Secondary Schools, 8 years in Secondary Training College including 5 years administrative experience as a Principal of the Secondary Teachers' Training College, 5 years in Post-Graduate Teaching. Pub. (in Gujarati) *Educational Psychology ; Principles of Education ; Vocational Guidance in Gujarat*. Add. 45, Malaviyanagar, Rajkot, Gujarat.

Trivedi, Ramanlal Shaunkarlal : Principal, M.B. Patel College of Education, Sardar Patel University, Vallabh Vidyanagar, Gujarat, since 1964. M.A., M.Ed. Exp. Secondary School Baroda 1941-50, Lecturer Faculty of Education and Psychology ; M. S. University of Baroda

1950-52 ; Lecturer, A. G. Teachers College, Ahmedabad 1952-55 ; Head of the Extension Department, A. G. Teachers' College, 1955-61 ; Principal, Parkash College of Arts and Education, Ahmedabad, 1961-62 ; Dean, Faculty of Education ; visited U.K. and U.S.A. Pub. *Teaching of Mother Tongue* (in Gujarati). Edited many papers and completed many research schemes.

Tula Ram (b. 1914) : Member, Lok Sabha; B.A., C. T. ; Educated at Sanatan Dharma High School, Etawah and Govt. Trg. College, Agra. Exp. Worked as teacher for ten years ; member of the Lucknow University Court ; Vice-President, Janta Inter College and Janta Degree College, Backewar (Etawah). Add. Village Puthian, P.O. Lakhna, Distt. Etawah, U.P.

U

Udanka Saulbayana : see under 'Great Teachers of Ancient India'.

Uddalaka Aruni : see under 'Great Teachers of

Ancient India'.

Unsuri : see under 'World Educators and Educationists'.

V

Vagisvara Kirti, Mahapandita : see under 'Great Teachers of Ancient India'.

Vairochana Rakshita, Mahacharya : see under 'Great Teachers of Ancient India'.

Vakil, Khushman Sanmukhram : Prof of Education, Sadhana School of Educational Research and Training, Santa Cruz, Bombay : B.A., B.T., T. D. (Lond.), Ph. D. (Bombay). Exp. 30 years. Pub. *The Great Educators, Topics of Interest to Parents and Teachers, The Basic Vocabulary of Gujarati Children at the Age of 11*. Add. 8, Podar Blocks, Podar St., Santa Cruz, Bombay. Vakil, Krishnall S. (1888-1966) : M. Ed., F. R. G. S., M. R. S. T. Exp. School Teacher. Inspector of Schools, Principal of Training College. member of many national and international educational organizations ; visited and studied the educational system of many countries. Pub. *Education in India, Education in England, Education in the U.S.A., Education in Germany, Education in Japan, History of Training of Teachers*.

Vakil, Ramanlal Narharilal (b. 1908) : Principal, Modern School, Bombay, since 1936 ; M. A. (Bombay) ; started as lecturer in English. Wilson College, Bombay 1933-36 ; member of P.E.N. Bombay Headmasters' Association and Kalam Mandal and other important committees ; Fellow Univ. of Bombay 1941-54 ; visited U.S.A. on a Teacher Education Programme as Fulbright grantee, 1952. Add. Sonawala Build-

ing, 1-B, 3rd Floor, Tardeo, Bombay.

Vartak, Narayan Trimbak (b. 1920) : Principal, Govt. College of Education, Akola since 1966 ; B. T., M. Sc., M. Ed. Montessori Dip., 1949 ; special trg. in Science Education, Univ. of Reading (U. K.). Exp. Prof. Chemistry, S. P. Coll., Poona 1946-50 ; Asst. Prof. Education, Prantiya Shikshan Mahavidyalaya, Jabalpur, 1950-56 ; Prof. B. T. Coll., Akola 1959-60 ; Education Inspector, Ahmednagar, 1959-60 ; Prof. Govt. Coll. of Edu., Aurangabad, 1960-66 ; Dean, Faculty of Education, Marthawada Univ., 1961-65. Add. Datta Niwas, 783, Sadashiv Peth, Poona.

Vasavada, I.U. : Chairman, State Board of Examination, Gujarat State, Ahmedabad since 1967 ; M.A., B.T. Exp. worked as Headmaster in Pratap High School, Bansda, 1942-49 ; Cambay High School, Cambay, Palampur High School, Palampur ; R. S. Dalal High School, Broach and R. C. High School of Commerce, Ahmedabad ; Educational Inspector, Surat District 1953-57, Principal, G. B. T. C., Rajpipla 1957-62 ; Deputy Director of Education, Gujarat State, 1962-64 ; Director, State Institute of Education, Gujarat State 1964-67. Pub. several stories, dramas and novels including *Juvenile Character*. Add. 70, Tagore Park, Ambavadi, Ahmedabad.

Vasubandhu : see under 'Great Teachers of Ancient India'.

Vasudeva, C. L. (Lt. Col.): SO-1 (Education), Headquarters Western Command; M.A., Dip. in teaching of English from Orthological Institute, Cambridge. Exp. has been engaged in the task of educating the troops and officers of the Indian army for about 26 years, attended many national and international conferences on education. Pub. a large number of books including *the Hidden Treasury, Citizenship for Army First Class Certificate of Education Examination, Citizenship for Army Second Class Certificate of Education Examination, Citizenship for Army Third Class Certificate of Education Examination, and Sainik Map Reading for Map Reading Standards I, II and III.* Add. H. Q. Western Command, Simla.

Vasudeva Sarvabhauma: see under 'World Educators and Educationists'.

Verghese, Paul Tolathi (b. 1911): Principal, Govt. Trg. Coll. Trivandrum since 1960; B.A., Dip. Edn. (Leeds), L.C.P. (London), M. Ed. (Leeds). Exp. Headmaster, High Schools 1938-45; Vice-Principal, Trg. College, Trichur 1945-49; Divisional Inspector of Schools 1949-52; Principal, Trg. Coll., 1952-58; Additional Director Public Instruction (Kerala), 1958-60; visited U. K., France, Italy and Holland. Pub. *Educational Psychology, Principles and Methods of Teaching, School Organization—Health Education.* Add. Chembukavu, Trichur (Kerala).

Verma, Balgovind (b. 1923): Member, Lok Sabha; M.A., L.T.; educated at Public Inter College, Gola Gokaran Nath (Kheri); B.N.S.D. Inter College, Kanpur and D.A.V. College, Kanpur. Exp. Principal, Krishak Samaj Agricultural College, Gola Gokaran Nath; founded the Krishak Samaj Educational Society, the Krishak Samaj Inter College, Gola Gokaran Nath and the Krishak Samaj High School,

Fatehpur. Add. Village Chhetonia, P.O. Gola Gokaran Nath, Distt. Kheri, (U.P.).

Verma, I. B. (b. 1909): Principal, A.K. College, Shikohabad, since 1963, M. A., M. Ed. Exp. Asstt. Master and Headmaster High Schools, Principal, Intermediate College 1949-50; Vice Principal and Prof. Edn. (1950-55); Principal, Arts & Training College, 1955-63. Pub. *Principles of Education, Siksha Shastra, Manovigyan Mool Tatav Ganitsar.* Add. F/115, Rajouri Garden, New Delhi.

Vibintieandra, Mahapandita: see under 'World Educators and Educationists'.

Vidya Sagar, Ishwarachandra: see under 'World Educators and Educationists'.

Vijnanesvara: see under 'World Educators and Educationists'.

Viryasimha: see under 'World Educators and Educationists'.

Vivekananda, Swami: see under 'World Educators and Educationists'.

Vyas, Jagdish Prasad (b. 1920): Principal, Staff College for Educational Administrators of Madhya Pradesh, Khandwa; M.A. (Nagpur), M.A. (Saugor), B. T. (Nagpur), Ph. D. Edn. M. A. T. Course in Educational Research and Administration (North Western University, U.S.A.) Exp. Teacher in Secondary Schools in Central Provinces and Berar 1940-45; Teacher Educator at Spence Training College, Jabalpur, 1946-1956; Prof. of Psychology at P. S. M. Jabalpur, 1958-1960; Prof. of Education at P. S. M. Jabalpur 1966-67; Joint Director of Public Instruction, Madhya Pradesh, Bhopal, 1967-68. Pub. *Pathshalaon ka Prabandh, Bharat men Angrezi Shiksha ka Itihas, Shiksha Shastra ki Bhoomika.* Editor 'Shiksha' quarterly. Add. 305, Howbagh, Jabalpur (M.P.).

W

Wadia, Ardeshir Ruttonji (b. 1888): former Director, Tata Institute of Social Sciences 1952-62; B. A. (Bombay and Cambridge); Dip. in Economics and Political Science (Oxford); Barrister-at-Law. Exp. Prof. of English and Philosophy, Wilson College, Bombay, 1914; Prof. of Philosophy, Mysore Univ. 1917-42; Director of Public Instruction, Mysore 1930-31 & 1942-43; Principal, Victoria College, Gwalior, 1946-48; Director of Education, Madhya Bharat 1948-49; Pro-Vice-Chancellor, M.S. University, Baroda,

1949-52; Member, Rajya Sabha, 1954-61; awarded Padma Bhushan 1961; President, International Conference of Social Work 1958-68; member, U.G.C. Add. Kalpana, 96, Marine Drive, Bombay.

Waghmare, Sow Shaktantala Govindrao: Principal Govt. College of Education, Parbhani; M.A., M. Ed. Exp. 19 years. Add. 'Niurara' Pension-pura, opp. Telephone Exchange, Aurangabad.

Wanchoo, V. N. (b. 1920): Additional Director of Education, Directorate of Education, Delhi.

M. Sc. Physics, Specialisation in Curriculum Development and Teacher Education (Columbia). Exp. 15 years in teaching at the undergraduate level and 12 years in educational planning at the national level; Lecturer in Physics, 1941-55; Research Officer, Central Bureau of Text-Book Research, Ministry of Edn., 1956-59; Research Officer, C. I. E. Delhi; Curriculum Specialist 1961-63; Reader, Department of Science Education, N.C.E.R.T., 1963-67; Deputy Chief Executive, N.C.S.E., 1967-69; Secretary, All India Science Teachers Association; Member, many national and international

professional organisations; visited U.K., U.S.A., Canada, Japan and Hong Kong. Pub. *Mathematics and Science Education in Delhi Schools, Criteria and Score Card for Evaluating General Science Textbooks in Primary Schools, Science Education in the Teacher Training Colleges in India*; a large number of articles in various journals.

Wilkins, Charles : see under 'World Educators and Educationists'.

Wilson, Rev. John, D. D. : see under 'World Educators and Educationists'.

Y

Yajnavalkya : see under 'Great Teachers of Ancient India'.

Z

Zakir Husain : see under 'World Educators and Educationists'.

Ziegenbalg : see under 'World Educators and Educationists'.

INDEX

Men of Learning in the Field of Education

<i>Name</i>	<i>Page</i>	<i>Name</i>	<i>Page</i>
Abelard, Peter ...	1	Arul Joseph, S.J. ...	50
Abhayakara Gupta ...	44	Aruna Aupavesi Gautama ...	44
Abhipratarin Kakaseni ...	44	Arya Deva ...	44
Abul Fazal ...	1	Asanga, Arya ...	44
Acland, Thomas Dyke ...	1	Asa Ram ...	51
Adams, John ...	1	Ascham, Roger ...	4
Adams, William ...	1	Asthana, Ishwar Sharan ...	51
Adaval, S. B. ...	50	Asuri ...	44
Addison, Joseph ...	1	Asvala ...	44
Adler, Alfred ...	2	Asvapati Kaikeya ...	44
Adler, Felix ...	2	Atidhanavan Saunaka ...	44
Aggarwal, Jagdish Chand ...	50	Atisa Dipamkara ...	44
Agrawal, Shyam Sunder Lal ...	50	Attar, Abdulgani Dadamiya ...	51
Ahluwalia, S.L. ...	50	Augustine, St. ...	4
Aiya, S.V.C. ...	50	Aurobindo, Sri ...	4
Ajatsatru ...	44	Ausonius, Decimus Magnus ...	5
Ajayapala ...	2	Avinashilingam Chettiar, T.S. ...	51
Albertus Magnus ...	2	Azad, Abul Kalam ...	5
Alberus, Erasmus ...	2	Azhicode, Sukumar ...	51
Alcuin ...	2	Bache, Alexander Dallas ...	5
Alden, Joseph ...	2	Bacon, Francis ...	5
Alfric ...	2	Baden-Powell ...	3
Allport, Gordon W. ...	17	Bagley, William ...	5
Alsted, Johann Heinrich ...	2	Bain, Alexander ...	5
Altekar, Anant Sada Shiv ...	50	Bajwa, Balkar Singh ...	51
Amin, Mandakini Manubhai ...	50	Baldwin, James Mark ...	5
Amoros, Francis ...	3	Balya, Suraj Narain ...	51
Anagnos, Michel ...	3	Banerjee, Gooro Dass ...	5
Andrea, Johann Valentin ...	3	Bapat, Balavant Venkatesh ...	52
Angell, James Rowland ...	3	Baranwal, Raghunath Prasad ...	52
Anna Saheb, B.M. ...	50	Barnard, Frederick ...	6
Annie Besant ...	3	Barnard, Henry ...	6
Apararka ...	3	Barnardo, Thomas John ...	6
Aquinas, St. Thomas ...	3	Barrow, A.E.T. ...	52
Aristotle ...	4	Basaviah, K. ...	52
Arnold, Mathew ...	4	Basedow, Johann Heinrich ...	52
Arnold, Thomas ...	4	Basu, Anath Nath ...	51

<i>Name</i>	<i>Page</i>	<i>Name</i>	<i>Page</i>
Beale, Dorothea ...	6	Chitra Gangyayani ...	45
Beecher, Catherine Elizabeth ...	6	Chitibabu, Saidapet Venugopal ...	54
Bekhterev, Vladimir M. ...	6	Claparede, Edouard ...	9
Bell, Andrew ...	6	Clarke, Fred ...	9
Bentham, Jeremy ...	6	Colet, John ...	9
Berkeley, George ...	7	Comenius, John Amos ...	9
Bernstein, Basil ...	7	Conant, James Bryant ...	9
Bethune, John Eliot ...	7	Condillac, Etienne Bonnot De ...	10
Bhakt Darshan ...	52	Condorcet, Marquis de ...	10
Bhandarkar, S.S. ...	52	Confucius ...	10
Bhatia, Hans Raj ...	52	Coombs, Philip H. ...	10
Bhatt, G.P. ...	52	Cordier, Maturin ...	10
Bhattacharya Suruchi ...	52	Counts, George S. ...	10
Bhave, Vinoba ...	52	Cousin, Victor ...	10
Binet, Alfred ...	7	Cunningham, W.I. ...	10
Bir Bahadur ...	53	Danasila, Acharya ...	11
Birua, Kolai ...	53	Dandekar, Ram Chandra Narayan ...	54
Bode, Boyd ...	7	Darwin, Charles ...	11
Bradley, George Granville ...	7	Das, Radha Charan ...	54
Brinsley, John ...	7	Das, Ram Dhani ...	54
Brooks, Charles ...	7	Dave, R. H. ...	54
Broucke, Sr. Lutgarde ...	53	Dawood A. R. ...	54
Brougham, Lord Henry ...	7	Dayananda, Swami ...	55
Bruner, Jerome Seymour ...	7	Day, Thomas ...	11
Bueh, M.B. ...	53	Deeroly, Ovide ...	11
Buddhakirti ...	45	Defoe ...	11
Burt, Cyril ...	8	De Garmo, Charles ...	11
Busby, Richard ...	8	De la Salle, St. Jean Baptiste ...	12
Buss, Frances Mary ...	8	Desai, Krishnakant Gopalji ...	55
Butler, Nicholas Murray ...	8	Descartes, Rene ...	12
Calvin, John ...	8	Deshmukh, Chintaman Dwarkanath ...	55
Carey, Rev. William ...	8	Devanabhata ...	12
Carlyle, Thomas ...	8	Dewey, John ...	12
Carr, Harvey A. ...	8	Dhananjaya ...	12
Carter, James Gordon ...	9	Dharmapala ...	45
Cattel, James McKeen ...	9	Dharmaratna ...	45
Chagla, Mahomedali Cugrim ...	53	Dhekney, A.M. ...	55
Chakrabarty, Probodh Ram ...	53	Diderot, Denis ...	12
Chandragomin ...	45	Dinkerrai, V.M. ...	55
Chari, Ahalya ...	53	Donatus, Aelius ...	13
Chaturvedi, Sitaram ...	53	Dosajh, N.L. ...	55
Chaube, S.P. ...	53	Drever, James ...	13
Chaudhary, Ramkhelavan ...	53	D'Souza, Austin Anthony ...	55
Chauhduri, Saurish Chandra ...	54	Duff, Rev. Dr. Alexander ...	13
Chaudhury, D.C. ...	53	Dubey, S.N. ...	55
Chaurasia, G. ...	54	Duggal, Satya Pal ...	55

<i>Name</i>	<i>Page</i>	<i>Name</i>	<i>Page</i>
Duncan, Jonathan ...	13	Harris, William Torrey ...	19
Durairasu, A. ...	55	Hartley, David ...	19
Dury, John ...	13	Hartlib, Samuel ...	19
Dutta, Hem Chandra ...	55	Hegel, Georg Wilhelm Friedrich ...	19
Ebbinghaus, Hermann ...	13	Hegius, Alexander ...	19
Eliot, Charles William ...	13	Helmholtz, Hermann Von ...	20
Ellis, Elmer ...	14	Hemachandra ...	20
Elphinstone, John ...	14	Herbart, Johann Friedrich ...	20
Elphinstone, Mount Stuart ...	14	Hiregange, T.K. ...	56
Elyot, Sir Thomas ...	14	Holt, Edward B. ...	20
Emerson, Ralph Waldo ...	14	Hoole, Charles ...	20
Erasmus, Desiderius ...	14	Horne, H.H. ...	20
Feehner, Gustav Theodor ...	15	Horney, Karen ...	20
Fichte, Johann Gottlieb ...	15	Hull, Clark Leonard ...	20
Fischer, John H. ...	15	Humboldt, Friedrich Wilhelm Von ...	20
Fisher, Herbert A.L. ...	15	Hunter, William Wilson ...	21
Flexner, Abraham ...	15	Hutchins, Robert ...	21
Forster, William Edward ...	15	Huxley, Thomas Henry ...	21
Francis, Galton ...	15	Isaacs, Susan ...	21
Franeke, August Hermann ...	16	Jain, Shikhar Chand ...	57
Franklin, Benjamin ...	16	James, Fr. Joseph ...	57
Freud, Sigmund ...	16	James, William ...	21
Froebel, Friedrich ...	16	Janaka ...	45
Fromm, Erich ...	16	Jaques-Daleroze, E. ...	22
Gandhi, M.K. ...	17	Jayaswal, Sita Ram ...	57
Gangesa ...	17	Jefferson, Thomas ...	22
Gargi Vachaknavi ...	45	Jerome ...	22
Gawan, Mahmud ...	17	Jetari, Acharya ...	46
Gesell, Arnold Lucius ...	17	Jevoor, S.V. ...	57
Ghate, Vithal Dattoray ...	56	Jha, V.S. ...	57
Gokhale, Gopal Krishan ...	17	Jitavan Salini ...	46
Gordon W. Allport ...	17	Jnanapada, Acharya Buddha ...	46
Gore, Madhav Sadashiv ...	56	Jnana Sri Mitra, Mahapandita ...	46
Gotama Rahugana ...	45	John, V.V. ...	57
Gould, Sir Ronald ...	18	Johnson, Samuel ...	22
Grant, Charles ...	18	Jones, William ...	22
Groos, Carl ...	18	Joshi, Amarehand ...	57
Grundtvig, Nikolai Frederik ...	18	Joshi, Hanumant Ganeshbjat ...	57
Gunavarman ...	45	Jung, Carl Gustav ...	22
Gupta, B.R. ...	56	Kabir, Humayun ...	22
Gupta, Sri Nath Das ...	56	Kalam, Abul ...	57
Guthrie, Edwin Ray ...	18	Kalathiveeti, Teresa K. ...	58
Halidar, Gourdas ...	56	Kalelkar, Kakasaheb ...	58
Hall, G. Stanley ...	18	Kamalasila ...	46
Hansen, Carl F. ...	18	Kamla Kumari ...	58
Harbison, Frederick ...	19	Kane, Pandurang Vaman ...	58
Hare, David ...	19	Kant, Immanuel ...	22

<i>Name</i>	<i>Page</i>	<i>Name</i>	<i>Page</i>
Kapur, J.N. ...	58	Loyola, St. Ignatius of ...	26
Kar, Bhubendra Chandra ...	58	Lulla, B.K.P. ...	60
Karve, Bhaskar Dhondo ...	58	Luther, Martin ...	26
Karve, Dhondo K. ...	23	Lutter, Lilian G....	60
Kashyapa, ...	46	Lyon, Mary ...	26
Kashyapa, Arjuna Chaube ...	58	Macaulay, Thomas Babington	26
Kaul, G.N. ...	58	McDougall, William ...	26
Kauravyani-putra ...	46	Maclure, William ...	26
Keate, John ...	23	Maheśa Thakkura ...	46
Kelkar, Shridhar Vithal ...	59	Maheśvara ...	26
Keller, Helen Adams ...	23	Mahidasa Aitareya ...	46
Kellogg, Winthrop N. ...	23	Maitreyi ...	46
Kerschensteiner, Georg ...	23	Majumdar, S.C. ...	61
Kesavasvamin ...	23	Mallappa, K. ...	61
Ketkar, Shridhar Vyankatesh ...	59	Malviya, Madan Mohan ...	26
Khafi, Shaikh Zainuddin ...	23	Mandal, Yamuna Prasad ...	61
Khair, Gajanan Shripat ...	59	Mangaldas, Leena Madanmohan	61
Khan, Jamshed Ali ...	59	Mankha ...	27
Khan, Sayyid Ahmad ...	23	Mannath Padmanabhan ...	61
Khusrau, Amir ...	23	Mann, Horace ...	27
Kilpatrick, William Heard ...	24	Mardikar, K.S. ...	61
Kirpal, Prem ...	24	Marshman, Rev. Joshua ...	27
Kishore, Jugal ...	59	Mary Colette ...	61
Kisku, Amiya Kumar ...	59	Mason, Charlotte ...	27
Klein, Melanie ...	24	Mason, Lowell ...	27
Kochhar, S.K. ...	59	Mathai, Samuel ...	61
Koffka, Kurt ...	24	Mathew, Anjilvel V. ...	61
Kohler, Wolfgang ...	24	Matlur, Hari Mohan ...	61
Koshe, Gangadhar Shridhar ...	59	Mathur, M.V. ...	61
Koshy, Theverthundiyil Abraham	59	Mathur, Prem Narain ...	62
Kothari, D.S. ...	24	Mathur, Raghuvansh Bahadur	62
Krishnayya, G.S. ...	59	Mathur, Vishwa Nath Sahai	62
Kshemendra ...	24	Maula, Sayyid ...	27
Kulandaivel, K. ...	60	MaxMuller, Friedrich ...	27
Kumarajiva ...	46	Mayavan, V. ...	62
Kundley, M.B. ...	60	Mazumdar, Amiya Kumar ...	62
Kunzru, Hriday Nath ...	60	Mehta, Hansa ...	62
Lajpat Rai ...	25	Mehta, Mohan Singh ...	62
Lal, Raman Behari ...	60	Melanchthon, Philip ...	27
Lall, D.I. ...	60	Milanda Panha ...	46
Lancaster, Joseph ...	25	Mill, John Stuart ...	27
Lane, Homer Tyrrell ...	25	Milton, John ...	27
Lashley, Karl ...	25	Misra, Atmanand ...	62
Lele, Trimbak Purushotam ...	60	Misra, Ram Gopal ...	63
Lewin, Kurt ...	25	Mody, J.J. ...	63
Linacre, Thomas ...	25	Mohammad Iqbal ...	28
Locke, John ...	25	Mokshakaragupta ...	28

<i>Name</i>	<i>Page</i>	<i>Name</i>	<i>Page</i>
Montaigne, Michel Eyquem De	28	Patel, M.S.	66
Montessori, Maria	28	Pavlov, Ivan Petrovich	31
More, Hannah	28	Payne, Joseph	31
More, Thomas	28	Peabody, E, Palmer	31
Morgan, Conwy Loloyd	28	Pestalozzi J.H.	31
Mudaliar, A. Lakshamananaswami	63	Phatak, Pramila	66
Mujeeb, M.	63	Phule, Jotiba Govinrao	31
Mukerjee, Adhir Kumar	63	Piaget, Jean	31
Mukerji, Ashutosh	28	Pillai, K. Sivadasan	66
Mukerji, S.N.	63	Pippalada	47
Mukherjee, L.	63	Plato	32
Mukherjee, Satish Chandra	28	Prajnakaramati, Sri Mahapandita	47
Mulcaster, Richard	29	Prasad, Mahendra	66
Muller, George Elias	29	Pravahana Jaivali	47
Munshi, Kanaiyalal Maneklal	64	Prem Nath	66
Munsterberg, Hugo	29	Purandare, Saraswati Anant	66
Murphy, Gardener	29	Puranik, G.A.	66
Murthy, Vincent	64	Purohit, G.L.	67
Naik, Jayant Pandurang	29	Purushottamadeva	32
Naik, M.H.	64	Quintilian	32
Nair, C. Sankaran	64	Radhakrishnan, Sarvapalli	32
Narendra Deva (Acharya)	64	Raghunandanadasa Raya	33
Natarajan, Srinivasa	64	Raghunatha Siromani	33
Nath, Satrughna	64	Raikva	47
Nayak, K.P.	64	Rajalakshmi Murlidharan	67
Nayar, D.P.	65	Rajkhona, Suresh Chandra	67
Newman, Cardinal John Henry	30	Ramchandran, G.	67
Nietzsche, Friedrich	30	Ramji, Marni Tata	67
Nunn, T. Percy	30	Ramkrishna, A. Rajaram	67
Oberlin, Jean Fredric	30	Ramus, Petrus	33
Owen, Robert	30	Ranade, M. G.	33
Padmanabhan, C.B.	65	Ranade, S.N.	67
Padma Sambhava	47	Rao, B. Surya	67
Pal, Samir Kumar	65	Rao, C.S. Subba	67
Paliwal, M. R.	65	Raoof, A.	68
Panandikar, S.	65	Rao, V K.R.V.	33
Pandey, B.N.	65	Ratke, Wolfgang	33
Pandey, R.S.	65	Ratnakara Santi, Mahacharya	47
Pant, M.C.	65	Ratnakirti, Mahapandita	47
Paranjpye, R.P.	66	Ratnavajra, Mahapandita	47
Parasnis, N.R.	66	Raulkar, J.D.	68
Parikh, G.B.	66	Rawat, D.S.	68
Parker, F.W.	30	Reddy, D.S.	68
Parkhurst, Helen	31	Reddy, P. Antony	68
Parsons, Frank	31	Richter, J.P. Friedrich	34
Pasericha, Krishna	66	River, W.H.R.	34
Patanchala Kopya	47	Rogers, Carl R.	34

<i>Name</i>	<i>Page</i>	<i>Name</i>	<i>Page</i>
Rousseau, Jean Jacques ...	34	Shraddhanand, Swami ...	37
Roy, B.C. ...	68	Shridevi, S. ...	71
Roy, Nikhil Ranjan ...	68	Shrimali, K.R. ...	71
Roy, Pankaj Kumar ...	68	Shriman Narayan ...	71
Roy, Raja Ram Mohan ...	34	Shukla, J.K. ...	71
Roy, T. ...	69	Shukla, Lalji Ram ...	72
Rumi, Maulana Jalaluddin ...	34	Shukla, Nandlal ...	72
Runkle, John Daniel ...	34	Shukla, P.D. ...	72
Ruskin, John ...	34	Shukla, S.C. ...	72
Russell, Bertrand ...	34	Sidhu, Savitri ...	72
Sadler, Michael ...	35	Silabhadra ...	48
Safaya, Raghunath ...	69	Singh, Rajendra Pal ...	72
Sahaya, Shyamnandan ...	69	Singh, Ram Karan ...	72
Sahni, M.S. ...	69	Singh, Sampuran ...	72
Saiyidain, K.G. ...	35	Singhal, R P. ...	73
Sakayana ...	47	Sinha, N B. ...	73
Salamatullah ...	69	Skinner, B. Frederic ...	37
Samant, B.B. ...	69	Skyes, M. ...	73
Sampson, George ...	35	Smith, Goldwin ...	37
Samuel, K. ...	69	Socrates ...	37
Sampurnanand ...	69	Sohoni, G.P. ...	73
Sanderson, Frederick William ...	35	Solonki, A.S. ...	73
Santarakshita ...	47	Solon ...	37
Santayana ...	35	Somadeva ...	37
Sanyal, N.K. ...	70	Spearman, Charles ...	37
Saraf, S.N. ...	70	Speneer, Herbert ...	37
Sarkar, S.C. ...	70	Sri Prakasa ...	73
Sarmiento, Domingo Faustino ...	36	Srivastava, A.B L. ...	73
Sastri, Srinivasa ...	70	Srivastava, A.P. ...	73
Satyakama Jabala ...	48	Srivastava, S.N. ...	73
Sehiller, Friedrich ...	36	Srivastva, K.M. ...	73
Schonell, Fred ...	36	Sthiramati ...	48
Schwartz ...	36	Stout, G.F. ...	38
Seguin, Edouard ...	36	Stow, David ...	38
Sen, Keshub Chander ...	36	Strang, Ruth ...	38
Sen, Triguna ...	70	Subhakara, Pandita ...	73
Sethi, R.L. ...	70	Snkhia, S P. ...	73
Shah, R.S. ...	70	Sulochanan Nayar, K. ...	38
Shankerset, Jagannath ...	36	Sully, James ...	48
Sharma, A.P. ...	70	Svetaketu ...	38
Sharma, A.R. ...	70	Tagore, Rabindranath ...	74
Sharma, Atmananda ...	70	Tandan, K.C. ...	74
Sharma, Dewan Chand ...	71	Taneja, V.B. ...	74
Sharma, T.R. ...	71	Taneja, V.R. ...	48
Sheldon, E.A. ...	36	Taponitya Pauru-sishti ...	74
Sher Singh ...	71	Tara Chand ...	48
Shitole, C. B. ...	71	Tathagata Rakshita, Mahapandita ...	48

<i>Name</i>	<i>Page</i>	<i>Name</i>	<i>Page</i>
Tawde, S.R. ...	74	Verma, B. ...	76
Terman, L.M. ...	39	Verma, I.B. ...	76
Tewari, B.G. ...	74	Vibhutchandra, Mahapandita	40
Tewari, D.D. ...	74	Vidya Sagar, Ishwarachandra	41
Thomas, J.P. ...	74	Vijnanesvara ...	41
Thomson, Godfrey	39	Viryasimha ...	41
Thorndike, E.L. ...	39	Vittorino Da Feltre	41
Thring, E. ...	39	Vivekananda Swami	41
Titchener, E.B. ...	39	Vives, Juan Luis	41
Tolman, E.C. ...	39	Vyas, J.P. ...	76
Tolstoy, Count ...	39	Wadia A.R. ...	76
Trivedi, H. ...	74	Waghmare, S. S. G.	76
Trivedi, M.D. ...	74	Wanchoo, V.N.	76
Trivedi, R.S. ...	74	Ward, James ...	42
Ula Ram ...	75	Washington, Booker T.	42
Udanka Saulbayana	48	Watson, John B.	42
Uddalaka Aruni	48	Weber, Ernst ...	42
Unsurī ...	40	Weiss, Albert P.	42
Vagisvara Kirti, Mahapandita	49	Wertheimer, Max	42
Vairochana Rakshita, Mahacharya	49	Whitehead, Alfred North	42
Vakil, Khushman S.	75	Wilkins, Charles	42
Vakil, K.S. ...	75	Willard, Emma Hart	42
Vakil, R.N. ...	75	Wilson, Rev. John, D.D.	43
Vaizey, John ...	40	Woodworth, Robert Sessions	43
Vasavada, I.U. ...	75	Wundt, Wilhelm	43
Vasubandhu ...	49	Yajnavalkya ...	49
Vasudeva. C.L., ...	76	Zakir Husain ...	43
Vasudeva Sarvabhauma	40	Ziegenbalg ...	43
Verghese, P.T. ...	76	Zwingli, Huldreich	43

PART III

**EDUCATIONAL SYSTEMS
OF
THE WORLD**

EDUCATIONAL SYSTEMS OF THE WORLD

A

AFGHANISTAN

The Afghan Constitution (1964) provides for free and compulsory primary education for every boy and girl in the country, without any racial or other discrimination, and lays down that all educational institutions shall be controlled and administered by the State. All educational institutions, whether primary, secondary, vocational or higher, are under the direct supervision of the government and are completely financed by the government. No financial assistance is received from parents, individuals, religious organizations or any other bodies. Education is free from the primary to the university level. Students are even supplied study material free of cost.

The period of compulsory schooling is 6 years from ages 7 to 13. The public primary schools cover 1 to 6 grades, while the rural primary schools cover 1 to 3 grades. Co-education, generally speaking, does not exist in schools. The mother tongue in each region is the medium of instruction, either Persian or Pushtu. The second language is taught separately. The principal objects of primary education are 'to impart to the younger generation religious and general knowledge and to develop their natural skills and capacities so that they may grow into men of character and learning, possessing sound physical and mental qualities'.

There are two types of secondary schools—general and vocational—where one can enter after successful completion of the 6-grade primary school. There are two levels of secondary education represented by the middle school (grades 7 to 9) and the full secondary school or *lycee* (grades 7 to 12). Many middle schools and *lycees* have primary classes attached to them. Students passing out of the middle schools either enter one of the trades or join a vocational school or *lycee*. Students passing out of *lycees* (i.e., after successful completion of 12th grade) are awarded the *baccalaureate* and can enter the university.

The Director-General of Inspection of the Ministry of Education is responsible for inspection and supervision of schools. A staff of general inspectors supervise and guide the provincial inspectors of the provincial directorates of education. The High Council of Education is the most important educational body which holds the final decision regarding important policies.

Pop. (1969 est.) 15,944,000. *Edu.* (1967): Primary, pupils 444,000, teachers 9,100; Middle, pupils 44,000, teachers 1,318; Secondary (general), pupils 10,000, teachers 521; Teacher training, pupils 6,000; Two universities at Kabul and Nangrahar. Budget of the Ministry of Education (1968-69) 930,413,000 Afghanis; 10% of State budget.

ALBANIA

The Ministry of Education and Culture is the highest State authority responsible for education and is guided by the decisions and directives of the Party and the Government; its aim is to provide the younger generations with a communist education and to disseminate culture among the masses. The executive committees of the district people's councils (the competent organs of the local authorities) play an equally important role and the co-operation of these committees is necessary and obligatory for the Ministry.

The schools belong to the State, though private schools can be opened only by special permission. The schools are separated from the church. Education is free for all types of schools. Pre-education is for children between 4 and 7 years of age. Education is compulsory for children for 8 years between the ages of 7 and 15 years. Primary education lasts 4 years for the age group 7-11. The aim of primary education, besides providing elementary instruction, is to inculcate in children a love of work, of their homeland and of mankind in general, to bring them up as free human beings and to

prepare them for the business of life. The 4-year primary education is followed by the first stage (lower) of secondary education for the age group 11-15. The second stage (upper) of secondary education is sub-divided into general education (4 years) and vocational and technical education (3 or 4 years). Teacher training, also based on 8-year school, lasts 4 years.

School supervision is organized at two levels: (a) by inspectors of education and culture sections under the executive committees of the district people's councils, and (b) by inspectors of the Ministry of Education and Culture.

Pop. (1968 est.) about 2 million. *Edu.* (1967-68): Primary, pupils 260,630, teachers 8,647; Secondary (general), pupils 163,986, teachers 7,931; Secondary (technical & vocational), pupils 8,493, teachers 455; Six higher educational institutes (including the State university at Tirana), students 6,951, teachers 566. *Edu. budget* (1968) 382,330,000 Leks; 9.5% of State budget.

ALGERIA

The Constitution adopted in 1963 makes education compulsory and available to all. The primary schools comprise a six-year course for children between 6 and 12 years of age, at the end of which a qualifying examination is held for entrance to the secondary level. Pupils not intending to go on to secondary school learn a trade by continuing for another 2 years in classes attached to the primary school. The secondary school offers a seven-year course beginning with a two-year orientation course followed by five years of general, academic, technical, vocational or agricultural education depending upon the type of school. The school leaving certificate of the first secondary stage is obtained after 3 or 4 years, and the *baccalaureate* or the final school leaving certificate at the end of 7-year course, which provides access to institutions of higher education. The prospective teachers for primary schools have to undergo a four-year course, after obtaining the school leaving certificate of the first secondary stage. The reorganization of higher education has begun from 1968-69. The institutions of higher education are almost entirely financed by the State and are controlled by the Ministry of National Guidance. The three universities of Algeria are at Algiers, Constantine and Oran.

Responsibility for education and instruction is vested in the Ministry of Education, which became part of the Ministry of National Guidance in 1963. The Arabic language is now taught as a national language. The 'Arabization' of

education is one of the major objectives of the Government, and, therefore, increased emphasis is laid on the teaching of the Arabic language and literature. The pupils received their Arabic *baccalaureate* for the first time in 1968.

Pop. (1967 est.) 12,540,000. *Edu.* (1967-68): Primary, pupils 1,461,776, teachers 33,113; Secondary (general), pupils 104,034, teachers 4,735; Technical, pupils 37,221, teachers 2,603; Teacher training, pupils 5,439, teachers 325; Higher (including 3 universities), students 9,720, teachers 693. *Edu. budget* (1968) 745 million Algerian Dinars; 21.05% of State budget.

ANDORRA

The Valleys of Andorra form an independent State under the joint suzerainty of the President of the French Republic and the Bishop of Urgel in Spain. Parents have a choice to educate their children at home or send them at a private school or in one of the French or Spanish schools. The French schools follow the French school system: there are primary classes, usually co-educational, for children between the ages 8 and 14; there is one lower general secondary school at Andorra la Vieja offering a four-year course leading to the lower secondary certificate; pupils after obtaining the lower secondary certificate may complete their secondary education in French secondary schools. The Spanish schools follow the Spanish educational system: there are separate schools for boys and girls; there are Spanish secondary classes in Andorra la Vieja offering a four-year course of lower secondary cycle after which pupils go to the secondary school at Seo de Urgel, six miles away in Spain, to complete their secondary studies. For higher education students have to go abroad, usually to France or Spain.

Pop. (1964 est.) 11,000. *Edu.* (1964): Primary, pupils 1,523, teachers 51; Secondary (French education), pupils 160, teachers 10.

ARGENTINA

The Fundamental Law of Education No. 1420 of 1884 provides for compulsory primary education from the ages of 6 to 14 years, unbiased as regards religion, and at the cost of the State when imparted in public schools. From 1952 education is free in all establishments at all levels dependent on the Ministry of Education. The object of primary school is to promote and guide the moral, intellectual and physical development of children.

Kindergartens, both public and private, are available for children of 3 to 5 years of age,

though the attendance is not compulsory. Primary education begins at the age of six in 7-year primary school. Overcrowding in many urban schools has necessitated the adoption of double shifts. The institution of fines on an ascending scale for parents, the provision of educational facilities in private schools or at home, visiting teacher service for sick children, etc., are some of the special measures to make compulsory schooling effective. The secondary school system generally consists of a 5-year cycle divided into the 3-year basic cycle and the 2-year second cycle. The 3-year basic cycle, termed *ciclo basico*, is a stage of general culture which is common to the general secondary, teacher-training and commercial schools and it permits students to change from one type of course to another. The course of the 2-year second cycle is specialized and different for various types of schools and leads to *baccalaureate* examinations. Technical education is offered in several types of schools, and vocational education is imparted in national industrial or agricultural schools having 2, 4 or 7-year programmes. Entrance to universities requires the *baccalaureate* degree or its equivalent in technical fields. Primary teachers are trained in a teacher training school of 5-year cycle termed *escuela normal*, and secondary school teachers are trained either in post-secondary normal institutes or in the universities. Public universities, although subsidized by the State, are autonomous, and their courses last from 3 to 6 years.

The Minister of Education and Justice is at the head of the educational system, though besides education he looks after justice. Although the Minister is the final authority, there are three bodies which enjoy wide powers in special areas. They are the National Council of Education, the Federal Council for Technical Education and the National Service for Private Education. All the public and private secondary institutions under the Ministry of Education are organized and controlled by the Directorate-General of Secondary, Teacher, Special and Higher Education; Directorate-General of Private Education; Directorate-General of Education in the Arts; Directorate-General of Technical Education; and Directorate-General of Physical Education. Inspection of public secondary schools is carried out by the Directorate-General of Secondary, Teacher, Special and Higher Education. Inspectors are assigned to specific areas and they carry out periodic visits to schools.

Pop. (1967 census) 23,031,000. Edu. (1967): Primary, pupils 3,224,380, teachers 162,652;

Secondary (general), pupils 189,754, teachers 27,379; Secondary (technical and vocational), pupils 453,843, teachers 64,653; Secondary (teacher training), pupils 203,399, teachers 24,357; Higher (including 9 national, 3 provincial and 11 private universities), students 266,653, teachers 17,225. Edu. budget (1967) 124,048 million Pesos; 17% of State budget; 4.6% of gross national product.

AUSTRALIA

The functions of Government in Australia are divided between the Commonwealth (Federal) Government and the State governments. Public education is primarily a State government responsibility. Commonwealth is responsible for education in its own territories. Under special arrangement acting as the agents of the Commonwealth, New South Wales administers education in the Australian Capital Territory, and South Australia in the Northern Territory. In each of the Australian States, the legal basis for public education is provided in an Educational Act. By law every child in Australia, whether born there or elsewhere, must attend school between the ages of 6 and 14 in the States of Victoria, Queensland, South Australia and Western Australia; between 6 and 15 in New South Wales; and between 6 and 16 in Tasmania. The six State governments provide both primary and secondary schools. All children may receive free primary education in government schools. For the most part, no teaching fees are charged for secondary education in State schools. Where they are charged, children can win competitive scholarships whereby the government pays all or part of their fees. In addition to the schools maintained by State governments, there are many private schools. These charge fees for their teaching and most are controlled by religious bodies.

Although it is not compulsory to attend school until 6 years of age, in practice most children commence schooling at 5 years of age. The education ladder properly begins with the infants' schools or infants' classes within the public school system catering for children between 5 and 8 years old. The length of primary schooling is generally 6 to 7 years. It is 8 years in Queensland. Most schools are co-educational. The terms 'class', 'grade', or 'standard' are used in various States representing one year's work for the normal child. The most usual size of a class is between 40 and 45. Although there is no rule for automatic promotion, almost all children in public primary schools are promoted from one class to the next each year on the

recommendation of the head teacher. Owing to the low population density in large country areas, there is a high proportion of one-teacher schools. The correspondence education is highly organized for children who cannot reach even a one-teacher school, and is supported by radio programmes, teacher-to-pupil 'hook-ups' on individual transmitters and travelling supervisors who visit correspondence students.

Most of the students are 12 to 13 years of age (14 in Queensland) as they complete the primary school and therefore, almost all students continue their education at a government or non-government secondary school, attendance being compulsory up to the age of 14. If they complete a full secondary course of 5 years, they will be 17 or 18 before they take up courses at universities, technical colleges and teachers' colleges. Examinations are held at the middle of the secondary course (after 3 years) for intermediate or equivalent certificate and again at the end of the course (after 5 years) for school leaving or equivalent certificate. A variety of courses is available for students who would go to the universities, who would not like to remain at school for the full secondary course and for students who have special interest and aptitudes. True vocational education is not given in secondary schools. Technical instruction, as is given, tends to be pre-vocational rather than vocational.

The State governments maintain four types of educational institutions of tertiary or post-secondary level—universities, teachers' colleges, technical colleges, and agricultural colleges. Australia has 14 universities. The universities are self-governing institutions, but receive substantial financial assistance from the Commonwealth and State governments. Teaching fees are charged (except in the University of Western Australia where teaching is free of charge), but the Federal and State governments offer a large number of scholarships based on the results of public examinations.

Each State system of education is highly centralized, largely attributable to vast territorial extent and small populations. The administrative control of education is in the hands of the Director (or Director-General) of Education responsible to the Minister (or Secretary) of Education (a member of the State Cabinet). The State education department is usually divided into three main branches—primary education, secondary education and technical education. The education department maintains contacts with schools through inspectors. Each secondary school is regularly inspected once every

2 years. The selection of inspectors are usually made from the practising teachers or headmasters.

Pop. (1968 est.) 11,991,000. *Edu.* (1967): Enrolment—Pre-school and Primary 1,741,000; Secondary 848,000; Technical about 400,000; Teacher training 28,900; in 14 universities 95,380. Teachers (pre-school, primary and secondary) 102,000. Expenditure on education (1966-67) \$911 million; 10.9% of total government expenditure; 5% of national income.

AUSTRIA

The Austrian Federal Constitution has not clearly defined the powers of the Central Government and those of the nine provinces in the field of education, yet the Federal Ministry of Education exercises general control and supervision over the educational system. Public and private schools exist side by side. The Federal Government maintains institutes of higher learning and secondary schools; the provincial and municipal authorities maintain kindergartens, primary, upper primary and part-time vocational schools.

The public primary schools provide free schooling for all children. Compulsory education covers an eight-year period from 6 to 14 years. Primary education is given in three types of schools: *Volksschulen* consist of grades 1 to 8 and make up the largest group; *Hauptschulen* have four grades 5 to 8; *Sonderschulen* consist of grades 1 to 8 and are meant for physically or mentally handicapped children.

A general secondary school offers an eight-year course divided into junior and upper department of 4 years each, the first four grades corresponding to the last four grades of an 8-grade primary school. Pupils generally enter the junior department of the general secondary school (*Gymnasium*, *Realgymnasium*, *Realschule* or *Frauenoberschule*) after completing the fourth primary school class, generally at the age of 10, and after taking an entrance examination. Almost all secondary schools have been provided with educational counsellors. Pupils who have completed the 8th grade of primary school or the 4th grade of a secondary school can be admitted to a secondary vocational school, such as a Technical and Industrial Training School, Girls' Vocational Training School, Commercial Secondary School or Teacher Training School. Students wishing to enrol at an institution of higher education must have passed the secondary school matriculation examination. The higher education courses are of 3 to 5 years according to the field of study.

The secondary school system is planned and organized by the Federal Ministry of Education, while it is administered by the provincial educational authorities. The Ministry of Education consists of a Department of General Education, a Directorate-General of Vocational Education and a Legal Department. Direct supervision of secondary schools is the responsibility of the provincial school inspectors assigned by the Federal Minister of Education to the Provincial Boards of Education. They are recruited from

the ranks of the most outstanding teachers.

Pop. (1967 est.) 7,322,800. *Edu.* (1967-68): Primary, schools 5,841, pupils 837,215; Secondary (general), schools 272, pupils 111,721; Secondary (technical and vocational), pupils 23,703; Other vocation institutes, pupils 32,794; Teacher training, pupils 5,494; Higher education (including 6 universities), students 55,650. *Edu. expenditure* (1967) about 7,148 million Austrian Schillings; 9.4% of State budget.

B

BAHRAIN

Bahrain is a Sheikdom whose modern educational system has been shaped by the joint collaboration, begun in 1944, between the Ministry of Education of the United Arab Republic and the Bahrain Education Department. The Bahrain Education Department is responsible for education which is free at all levels from the age of 6 years onwards. Primary education lasts six years, intermediate education (general, technical and religious) two years, and secondary education (general, commercial, technical and religious) three years. The intermediate level is the result of several attempts at lengthening the duration of schooling by adding two classes, after the primary, preceding the secondary level. The teacher training offers a two-year course after secondary general education, and is imparted in the Teacher Training College opened in 1966. Candidates for higher education attend university courses abroad, particularly in the Lebanon, the United Arab Republic and the United Kingdom.

Pop. (1965 census) 182,203. *Edu.* (1967-68): Enrolment—Primary 35,165; Intermediate (general and technical) 5,301; Secondary (general and technical) 4,413; Higher teacher training 107; Teachers (for all three levels)—about two thousand. *Edu. budget* (1967-68) 2,994,500/000 Bahrain Dinars; 26.3% of national income.

BELGIUM

Both public and private kindergartens take care of pre-primary education of children from 3 to 6 years of age, the attendance, however, is optional. The school attendance is compulsory and free from 6 to 15, but most children continue this education until they are 16 or 18.

Education is given in the language of the area, French in the south, Flemish in the north and German in certain parts of the east.

Secondary education between the ages of 12 and 18 comprises general secondary education, technical education, teacher training and artistic education. Secondary education comprises two stages, a lower secondary (3 years) and an upper secondary (3 years). Pupils receive a diploma after completing the lower stage, and then get access to the upper stage. At the upper secondary level there is greater specialization with the following sections: Latin-Greek, Latin-mathematics, Latin-science, modern scientific A (mathematics predominates), modern scientific B (natural sciences predominate), modern economics. In official education, pupils have choices between courses in religious instruction and the course in lay ethics. On completing the 6-year course, pupils may enrol for higher education.

The system of vocational education is extremely complex as schools have been set up throughout the country to serve local needs. The old apprenticeship traditions have now been broadened to provide a general training and a direct preparation for a specific trade.

There are three types of teacher training institutions: 3-year course for nursery school teachers, 4-year course for primary school teachers, and 2-year course for teachers of lower secondary school. Teachers for upper secondary school are trained at universities, where they have to take a degree and pass the competitive examination for secondary school teachers.

At the universities the courses have two stages: the first, called '*candidature*', is a period usually of 2 years for general or indirect preparation for specialization; the second is the specialized stage leading to the degrees.

There are two main teaching systems: the public system consisting of institutions depending on the State, the provinces or the local authorities; and private, administered by groups or private persons.

At the State level, the Minister of Education is the supreme authority for national education. For each branch of education there is a general directorate which administers the State schools. The directors-general are assisted by administrative services, inspectorates and advisory boards. There are two inspectors-general of ordinary secondary education, one for each linguistic region, assisted by inspectors of general courses (literary and scientific) and special courses (music, domestic work, drawing, agricultural courses, etc.). State inspection does not play any important and decisive role in the sphere of subsidized education and private schools.

Pop. (1968 est.) 9,605,600. *Edu.* (1967-68): Enrolment—Primary 1,008,288; Intermediate 289,857; Secondary (technical) 493,805; Teacher training 30,264; Higher (technical) 29,647; in four universities 59,172. Budget of the Ministry of Education and Culture (1968) 48,041 million Belgian Francs; 18.6% of State budget.

BOLIVIA

The Bolivian Constitution (1947) lays down that education is the highest function of the State, is compulsory from the ages of 7 to 14, and is free in public primary and secondary schools; all universities are autonomous; and education at all levels is under the protection of the State and is exercised through the Minister of Education.

The Bolivian educational system falls into two distinct sectors—urban and rural. The urban education is directed by the Ministry of Education and the rural education by the Ministry of Rural Affairs.

For children between 3 and 6 years there are both public and private kindergartens mostly confined to provincial capitals. Though school attendance is compulsory between the ages of 7 and 14, many children leave school before the age of 12. The urban primary education takes care of children from 7 to 13 years and covers a six-year course, organized in three stages (*grados*), each covering two grades (*cursos*). The rural primary education is mainly organized on the system called 'rural school nuclei' (*nucleos escolares campesinos*), i.e., each unit consists of a central school and a number of sectional schools in the surrounding district.

The principal of the central school is responsible for the efficient functioning of the sectional schools. The nuclear schools usually provide two stages of study, each of two years.

The secondary education consists of a 6-year course divided into two phases—the basic four-year cycle of general studies, and the second cycle of two years which allows specialization in either the humanities or the sciences. A boys' school is termed a *college* and a girls' school a *lyceum*. The *bachillerato* diploma is conferred by the university on the completion of secondary studies. Technical, vocational and professional education follow a variety of patterns. Pre-vocational training is available in the last two years of primary school. In most of the secondary schools technical or vocational training is given concurrently with the academic curriculum in the basic four-year cycle, and the two-year advanced training is given in some specialized schools. Urban primary teachers follow a four-year course after the basic four-year cycle, and the secondary school teachers have to complete university level teacher training courses.

The administration is centralized in the Ministry of Education. Under the Minister, the principal official is the Director-General of Education who conveys his technical and administrative instructions through the various district education offices. The inspectors act as intermediaries between the district education office and the educational institutions.

Pop. (1968 est.) 3,852,000. *Edu.* (1965): Primary, pupils 526,833, teachers 17,661; Secondary (general), pupils 78,380, teachers 2,734; in 4 technical colleges, students about 7 thousand; in 15 teacher training colleges, students about 5 thousand; in 7 universities, students about 15 thousand. Public expenditure on education (1965) 272 million Pesos; 4.3% of national income.

BOTSWANA

Botswana is a republic which became independent and adopted its own Constitution in 1966. The overall responsibility is vested in the Ministry of Education, Health and Labour. The new Education Law and the election of the local councils in 1966 ended the control of the tribal school committee over primary education, which has now become the responsibility of the Ministry of Local Government and Lands. Nine elected district councils and three elected town councils serve as local education authorities for the promotion of primary education. Schooling has not yet been made compulsory.

Fees have to be charged at primary and secondary levels owing to inadequate resources. The age of first admission to school is being gradually reduced; the maximum age of first admission has been lowered from 13 in 1962 to 8 in 1968. The primary education lasts seven years after which pupils are selected for admission to general secondary education of five years by a committee of all the post-primary school heads. The technical and vocational education offers courses of one to three years and teacher training of two to three years. About 4% of teachers at secondary level are volunteers. Francistown Teacher Training College opened in 1968 provides untrained teachers with courses consisting of three short residential courses separated by two terms (each of 10 months) of on-the-job study by correspondence and programmed instruction.

Pop. (1967 est.) 593,000. *Edu.* (1968): Primary, pupils 78,963, teachers 1,795; Secondary, pupils 2,299, teachers 131; Teacher training, pupils 322, teachers 22. Appropriations for education (1967) 2,411,988 Rand; 13% of total State expenditure; 6% gross national product.

BRAZIL

The earlier Brazilian Constitution (1946) gave the federal government the power to legislate on the patterns and bases of national education and laid down that primary education shall be compulsory and shall be given only in the national language; religious instruction shall be included in the curricula of the public schools, and shall be optional and shall be given in accordance with the religious faith of the pupil. Under the new Constitution (1967) education is compulsory for all children between the ages of 7 and 14 years.

The number of pre-primary schools is not large and is mostly privately operated. Earlier, the full programme of primary education covered a four-year elementary course with a fifth supplementary year which was becoming general for all urban primary schools. Most of the rural primary schools had a three or four-year course. The present law on the bases of education stipulates that primary education shall consist of not less than 4 years and may extend to 6 years. As such the extension of primary education has necessitated the introduction of the 5th and 6th primary years.

The secondary or intermediate level of education comprises general secondary, commercial, industrial, agricultural, and teacher training. The full secondary course in all branches is of

7 years duration divided into two cycles of 4 and 3 years. For admission to the first cycle of 4 years, pupils must have attained 11 years of age. The first stage of general secondary education of 4 years is provided in junior secondary school (*ginasio*). The second stage of 3 years is provided in senior secondary school (*collegio*). The junior secondary school has a uniform curriculum, while the senior secondary school offers a choice between a classical and a scientific stream. The primary teachers are trained in the secondary-level teacher training which comprises two stages. The first stage of 4 years prepares teachers only for rural primary schools, the second stage of 3 years completes the training for primary teachers. The teachers for secondary schools are graduates with an additional one year spent studying 'education'. Higher education is available to all who have completed the 7-year secondary course. The courses of higher education vary from 3 to 6 years according to the subjects. The first degree is the bachelorship, followed by the mastership, which requires one additional year of study.

Brazil is a Constitutional federation of 21 States, 5 territories and one federal district. The States and the federal district have independent educational systems and are mainly responsible for primary and normal education. In the States the administration of the school system is generally under a Secretary of State for Education appointed by the Governor. The federal government still exercises general directive and supervisory powers over State, municipal and private schools through its National Department of Education and the Directorates of Secondary, Higher, Commercial and Industrial Education, each of which has a corps of inspectors regularly visiting the institutions to see that the prescribed standards are maintained and regulations are followed.

Pop. (1968 est.) 89,815,000. *Edu.* (1967): Primary, schools 127,813, pupils 11,182,746, teachers 395,149; Secondary (general), schools 11,552, pupils 2,816,400, teachers 181,581; Higher (45 universities), students over 155 thousand. Budget of the Ministry of Education and Culture (1967) about 599,948 million Cruzeiros; 10.2% of gross national income.

BULGARIA

The Constitution (1947) of the People's Republic of Bulgaria lays down the following: Every citizen has a right to education; Education is democratic and progressive in spirit; Ethnic minorities have the right to instruction in their mother tongue; they have the right to

develop their own national culture, although the study of the Bulgarian language is compulsory; primary education is compulsory and free; schools belong to the State.

Pre-primary education for children between 3 and 7 years of age is given in kindergartens, of which there are several types: half-day kindergartens; all-day kindergartens open for 12 hours a day intended for children whose mothers work outside the home; and seasonal kindergartens for children whose mothers are engaged in seasonal work. Compulsory schooling is provided for children between 7 and 16 years of age. The schools are divided into two levels, the primary level covering grades I to VIII, and the secondary level (*gimnazija*) covering grades IX to XII. The primary and secondary schools may be combined to provide instruction from grades I to XII. Thus such a general secondary school covers three cycles of education: elementary (I to IV), intermediate or upper primary (V to VIII), at the end of which compulsory education stops; and a senior or secondary stage (IX to XII). The three cycles or stages may also be split up into an elementary, an upper primary and a secondary school respectively, or the first two courses may be combined in an 8-year primary school. Under the law, the general secondary schools have become polytechnics where teaching is slanted towards production. The secondary vocational school (*technicum*) provides a four to five-year course after the primary school. The technical and vocational school provides a one to three-year course after the primary school.

Teacher-training secondary school prepares teachers for the elementary school and kindergarten; teacher-training college provides a two-year course after secondary education for preparing teachers of intermediate classes (V to VIII); and teachers for classes (IX to XII) have to possess a university degree. Higher education is provided in institutes, academies and universities, and the courses last from 4 to 6 years leading to diplomas or degrees.

The whole administration of the schools is based on the principle of democratic centralization with line-and-staff direction. The Council of Ministers is the supreme authority in the field of education and instruction. The Ministry of Education and Culture is the body which discharges the State's function in this field. At the provincial level, the administration of public education is the responsibility of the Provincial People's Councils and their attached Education and Culture Sections. The general

control of schools and studies is exercised by the Ministry of Education and Culture, and it supervises either directly or through the Education and Culture Sections attached to the Provincial Peoples' Councils. The provincial sections discharge their task of supervision through a corps of specialist inspectors. The Pedagogical Bureaux co-ordinate the work of the inspectors and share with them the task of preparing and organizing lectures designed to raise the ideological, political, scientific and methodological standards of teaching staff and the principals.

Pop. (1967 est.) 8,310,200. *Edu.* (1967-68): General (classes I to XI), pupils 1,209,432, teachers 57,065; Technicians, pupils 138,261, teachers 8,514; Secondary technical and vocational pupils 99,793, teachers 6,928; Higher (including the University of Sofia), students 93,523, teachers 6,815. In 1967, the educational expenditure was 8% of State budget.

BURMA

The Burmese Constitution contains the following provisions for education: the State shall make provision for free and compulsory primary education; the State shall take special care of the physical education of the people in general and of the youth in particular; all useful arts and sciences, research and cultural institutions and the study of Pali and Sanskrit shall enjoy the protection and support of the State. In 1966, the educational system was radically revised, and all private schools have since been taken over by the State.

Provision for pre-primary education is yet inadequate, and most of the pre-primary schools are run by private organizations. Primary schools comprise four grades from I to IV for children 6 to 10 years of age. Secondary schools include the Middle Schools (or Junior Secondary Schools) from grades V to VII for pupils aged 11 to 14 or over, and the senior level of High Schools (or Senior Secondary Schools) from grades VIII to X for pupils aged 14 to 16 or over. There are also complete institutions where the primary department (I to IV) is attached to Middle and High Schools. In the high school stage education is diversified into academic, agricultural and technical. The vocational and technical high schools provide training at post-middle school stage. Education in all State schools, at both primary and secondary levels is free.

Teacher-training colleges offer a one-year course for primary school teachers and a two-year course for middle school teachers.

Education is centralized. Full responsibility for education is vested in the Minister of Education. The Director of Public Instruction is responsible for carrying out the policies of the government and for the direction and control of education. For purposes of school inspection and administration, Burma is divided into eight divisions, education in each division being controlled by the inspector of schools. The inspectors are expected to visit all schools at least twice in a school year.

Pop. (1967 est.) 25,811,000. *Edu.* (1965-66) : Primary, schools 13,903, pupils 1,886,335, teachers 36,975 ; Middle, schools 858, pupils 369,603, teachers 8,778 ; High, schools 605, pupils 501,424, teachers 13,886 ; Two universities at Rangoon and Mandalay with 24,482 students. Public expenditure on education (1963) 186 million Kyats ; 2.7% of national income.

BURUNDI

Burundi is a republic which acquired its independence in 1962 and adopted its own Constitution in 1966. The overall control of schools is vested in the Ministry of Education and Culture which is assisted by Inspectors General. Education is not compulsory, but is free at all levels from primary onwards. Pre-school education for children between 3 and 6 years of age is paid by parents. Primary education usually covers a period of seven years and is intended for children between the ages of 6 and 16. It leads to the primary school-learning certificate. Secondary education covers a period of six years divided into two 3-year cycles. Medium of instruction at the primary level is Kirundi while French is made a compulsory subject. At the secondary level French is the medium of instruction. Pupils who have completed primary schooling are admitted to the courses of study in technical and vocational schools which lasts four to seven years. Training for primary school teachers covers a four-year course after primary education, the first three years follow the first cycle of general secondary education and the fourth year is given to teacher training. The University College at Bujumbura provides higher education.

Pop. (1968 est.) 3,407,000. *Edu.* (1967-68) : Primary, pupils 170,916, teachers 4,292 ; Secondary (general), pupils 3,297, teachers 323 ; Secondary (technical and vocational), pupils 1,005, teachers 131 ; Higher (including the University College at Bujumbura), students 294.

BYELORUSSIAN S.S.R.

Byelorussia is situated in the western part of the Soviet Union. Like the 14 other Union Republics, it is a sovereign State ; it has its own

Constitution and it retains the right to secede from the USSR. Under its Constitution all stages of education, including higher education, are free and all citizens have an equal right to education. Education is universal and compulsory for the first eight years of schooling, but the decisions of the 23rd Congress of the CPSU envisage the transition to universal, compulsory 10-year education by 1970. Byelorussia has already made substantial progress in this direction.

Kindergarten accept children from the ages of 3 to 7 years. Eight-year school is the official title for incomplete secondary general schooling which is universal and compulsory for all children between the ages of 7 and 15 or 16 years. It gives the pupils the fundamentals of general and polytechnical knowledge and instils in them industriousness and readiness to undertake socially useful activity. The eight-year schooling consists of two stages : primary consists of the first 4-year course and secondary consists of the last 4-year course. On completing the 8-year schooling, pupils are free to select any branch of education. The main types of educational institutions are : senior secondary polytechnical school, a school for young workers and peasants, *technicums* and other specialized secondary educational establishments, and vocational-technical schools. The senior secondary polytechnical school provides a complete secondary education and vocational training for work through a 3-year course (9, 10 and 11 grades), after which a pupil is eligible to take up a job or enter a higher educational institution. Unlike the 8-year school where the industrial work is of an academic and character-forming nature, the productive training at this senior school is conducted directly in factories and work-shops.

The administration of public education is vested in the Council of Ministers, acting through the Ministry of Education. The Minister of Education remains responsible both to the Supreme Soviet and to the Government of Byelorussia. The schools are administered directly by the district education departments working under the Ministry of Education and the executive committees of the Soviets of Workers' Deputies. The inspectors attached to the Ministry, and district, municipal and area departments supervise the educational work and verify the standard of general instruction.

Pop. (1967 est.) 8,744,000. *Edu.* (1967-68) : General education, pupils 1,799,000 ; Specialized secondary education, pupils 138,000 ; Higher education 124,800. Expenditure on public education (1968) 557,493,000 Roubles ; 25% of the total budget.

C

CAMBODIA

There is no article in the Constitution that deals with education. The only fundamental texts on education are the royal decrees and ministerial circulars. Public education is free at all stages. Education is wholly supported by the State, except that some philanthropic societies known as 'Friends of Education' collect money for building new classrooms. There is a small number of private pre-primary schools for the children between 3 and 5 years old. Two types of primary schools are in existence. The *khmer* primary education is carried on in the modernized pagoda schools within the pagoda enclosures. The courses last for 3 years and consist of three classes, the infant, the preparatory, and the elementary classes. The Franco-Khmer primary education is carried on through two stages of 3 years each—the *cycle elementaire* (lower primary stage) consisting of the infant, the preparatory, and the elementary classes, and the *cycle complementaire*. Teaching is done in Cambodian, though French is first introduced in the elementary class. After the successful completion of the 6-year course of primary education, the *Khmer* complementary primary school certificate is given to the pupils who have to take a competitive examination for admission in a secondary school. At the time of admission a candidate should be between 11 and 16 years of age. The general secondary education is given at the *colleges* (the lower general secondary schools) having a 4-year course, and *lycees* (general secondary schools) having a 7-year course divided into two stages—the first stage of 4 years and the second stage of 3 years. The curricula is the same for all secondary schools, both State and private, though teachers are allowed a certain measure of reasonable freedom in applying these curricula. During the final year of the second stage the pupils are allowed to specialize in literature, science, or mathematics as per requirement of higher education.

The training of primary school teachers lasts one year, and is generally reserved for teacher training school students who have completed the fourth-year class.

The Law Faculty, Royal School of Medicine, and Royal School of Administration are responsible for Higher Education. Ministries of Agriculture and of Public Works and Telecommunications run various schools and colleges for training technicians in their special areas.

The Ministry of National Education is responsible for public education, except technical schools which are directly under the Ministry of Public Works and the Ministry of Agriculture. Under the Ministry of National Education there are two Directorates—the Directorate of Secondary and Higher Education and the Directorate of Vocational and Technical Education. The primary schools are inspected by primary inspectors of each province and the secondary schools are inspected by secondary school inspectors.

Pop. (1967 est.) 6,415,000. Edu. (1967-68): Primary, schools 5,716, pupils 934,292, teachers 19,139; Secondary (general), schools 162, pupils 99,584, teachers 4,464; Technical and vocational, pupils 5,787; Higher (including the Royal University at Phnom-Penh), students 8,929. Expenditure by the Ministry of Education (1965) 1,130 million Riels.

CAMEROON

The Federal Republic of Cameroon comprises two federated States of West Cameroon and East Cameroon. Independence was proclaimed in 1960 and the two parts of the country (formerly under English and French administration) were unified in 1961. Pre-school and primary education are dealt with by the Secretariat of State for Education in East Cameroon and by the Secretariat of State for Primary Education and Social Affairs in West Cameroon. Secondary, technical and higher education are dealt with by the Ministry of Education, Youth and Culture.

Two school systems exist side by side: the British system in West Cameroon with 8 years of primary education and 5 years of secondary education; and the French system in East Cameroon with 6 years of primary education and 7 years of secondary education divided into two cycles of 4 and 3 years each and available in *lycees* and *colleges*. It has been proposed to complete the final integration of the two systems by 1970. The Commission appointed by the Ministry of Education to co-ordinate and harmonize educational methods and requirements has outlined certain objectives and fixed some of the common syllabuses for use in the two States of the Federation. English and French are both, considered as 'a first (or second) official language'. Many schools are becoming bilingual. The length of the primary schooling period is being gradually limited to 8 years,

no pupils being allowed to remain in primary school beyond the age of 14 years.

Several courses have been set up for the professional training of teachers at various places. Technical and higher education remains largely dependent on foreign technical assistance. There is a university at Yaounde.

Pop. (1967 est.) 5,470,000. *Edu.* (1967-68) : Pupils in East Cameroon—Primary 643,449, Secondary 33,488, Technical 9,685, Teacher training 1,383 ; Pupils in West Cameroon—Primary 172,000, Secondary 3,893, Technical 1,369, Teacher training 1,844 ; Enrolment in Federal University and School of Administration 2,196. Appropriations for education (1967-68) about 5,204 million CFA Francs ; 14.2% of total expenditure of the Federal Republic ; 3.5% of gross national product.

CANADA

Canada is a federation composed of ten provinces and two territories. Responsibility for education rests with the provincial legislatures for the provinces, and with the Federal Government for the territories. Federal Government also looks after the education of Indians, Eskimos, members of the armed forces and their dependents, and inmates of penitentiaries ; provides grants to universities and colleges distributed by the National Conference of Canadian Universities ; participates in informal education ; and makes grants-in-aid for research.

The organization and administration of educational system differ from province to province. Each province has a department of education headed by a Minister of Education. Each department is administered by a deputy minister who is a professional educationist and public servant. In each province the educational system is based on the Provincial School Act or Acts. Under the School Act or Acts, the locally elected or appointed educational authorities establish and operate the schools and remain responsible to the provincial government and to the resident ratepayers for the construction, maintenance and operation of such schools.

There are some nursery schools, mainly privately operated for children from 3 to 5 years of age. Kindergartens are a part of the public elementary school system in most large urban centres, and they accept normally 5-year old children. Compulsory education requirements vary among the provinces, though in general they extend from ages 6 to 15. Children, generally at the age of 6, enter an eight-grade elementary school, and at about 14 years of age

90% of them enter a regular four or five-year secondary school. After successfully completing the school course, about 13% of those who entered school, go on to college or university where more than half of them pursue a 3 or 4-year programme leading to a bachelor's degree. The remaining students pursue various professional courses. The 8-4 plan from grade 1 to university was the basic educational structure in all but the Catholic schools of Quebec. This plan, however, was modified from time to time in all provinces. For example, in some places one or even two years of kindergarten have been added at the beginning of the school system. In others, an extra year has been added to the high school providing 5 years of secondary schooling. The introduction of Junior High Schools has changed the plan to 6-3-3 or 6-3-4. A fairly recent innovation is the establishment of Junior Colleges composed of one or two years of high school and one or two years of college. In Quebec there are two parallel and distinct programmes of education operating under a common School Act. The Roman Catholic French-speaking majority operate one school system with elementary stage extending from 1 to 6 grades, and the secondary stage from 7 to 11 or 12 grades. The non-Catholic English-speaking minority operate a second system, with equal privileges, which is similar to that of the other provinces.

Vocational and technical education has grown considerably. Some 65 institutes of technology offer courses of 1 to 4 years with junior matriculation as minimum qualification. More than 30 trade and vocational schools, mostly in Quebec and Ontario, provide short courses or complete post-secondary courses. Vocational, technical and commercial high schools are an integral part of the high school system of some provinces. Provincial trade schools and institutes of technology are operated to complement the work undertaken in vocational high schools, and some of these prepare highly skilled technicians.

Candidates for elementary teacher certificates in all provinces must have a minimum of high school graduation and at least one year of professional training in a teachers' college or a faculty of education. Secondary school teachers are generally university graduates who have either graduated with a year in education or have taken an additional year in a college of education. The present trend is to give the universities the responsibility for training elementary as well as secondary school teachers ; the teacher colleges now operate in only four

provinces. Teachers are paid according to a local salary scale based on years of training and experience.

There are somewhat two different systems of higher education. One was originally patterned on the French system, but now most of them are adapting North American traditions while still retaining distinctly French characteristics. The other was designed according to English, Scottish and American practices with instructions given in English. Institutions comprising a third small group, and giving instructions to both English-speaking and French-speaking students, are operated and controlled mainly by Roman Catholic groups; the first such bilingual institution is the University of Ottawa.

Although there are variations, most students enter a university after completing 11 to 13 years of elementary and secondary schooling. The first degree (bachelor's degree) in arts, science or professional fields is obtained after successfully pursuing 3 to 5 years course. The second degree is the master's—at least one year beyond the first degree—and the third is the doctorate normally requiring at least 2 additional years beyond the second degree.

Pop. (1966 census) 20,014,880. Primary and Secondary education (1966-67): schools 20,649, pupils 5,281,463, teachers 230,412. Teacher training (1964-65): colleges and faculties 148, students 37,658, teachers 2,103. Higher education (1964-65): colleges and universities 370, students 178,238, teachers 14,300. Public expenditure on education (1965) \$ 3,292 million; 8.5% of national income.

CENTRAL AFRICAN REPUBLIC

The country acquired its independence in 1960. The responsibility of education rests with the Ministry of Public Instruction. Education is provided by the State and the religious denominations, the latter being responsible for one-third of the pupils at the primary schools. The system of education follows the French pattern. Primary education lasts six years. Secondary education consists of different types of courses: a full classical and modern course of 7 years available in *lycee* or *college classique* and *college moderne* intended for those who wish to enter the university; a short course of 4 years in vocational training for the intermediate ranks in industry and commerce; a technical course of 4 years intended for workers in industry or agriculture. There are two institutions of higher education for specializing in agriculture under the Foundation of Higher Education in Central

Africa (representing France, Congo, Gabon, Chad and Central African Republic). For higher education in other fields students have to go to other African countries or abroad.

Pop. (1967 est.) 1,459,000. *Edu.* (1965): 65 kindergartens, 2,100 primary schools, 140 secondary schools and 57 technical and vocational schools, with a total enrolment of about 130,000 pupils. Public expenditure on education (1965) 1,196 million CFA Francs.

CEYLON

Education is compulsory from 5 to 14 years of age and is free from the kindergarten to the university. Primary and also secondary education is imparted through the medium of the mother tongue (Sinhalese or Tamil) except that certain science subjects are permitted to be taught in English. Schools are owned either by the Government or by private bodies. In all the schools, leaving out a few unaided ones, almost the entire cost of the maintenance of schools is met out of government funds.

There are some public and private kindergartens. The primary school consists of a six-year course up to the 5th standard, the first standard made up of 2-year infant section. The secondary schools are of the following types: Junior Secondary School from standard 6th to 8th; Senior Secondary School from standard 6th to standard 10th leading to Senior School Leaving Certificate Examination; and a college which provides education from or above standard 6th to standard 12th leading to Higher School Certificate Examination. A primary school may be maintained with a Junior Secondary School or Senior Secondary School, but not with a college. The aim of most of the pupils in the Secondary Schools is to enter the University of Ceylon or other universities through a very stiff admission test. The idea of a Central School in each of the 50 electorates needs a special mention. The Central School with facilities of residence is meant for promising pupils from the primary schools of the neighbourhood so that they may receive a better type of secondary education. Selection is made on the result of a competitive test and a large number of students are given full free-ship.

The course of a teacher training school for primary teacher lasts two years—the first year provides a broad-based general education and the second year a specialized scheme of training. The Government Training Colleges train specialist teachers for secondary schools.

The Minister of Education is responsible for education which is planned and organized by the Department of Education. The Director of

Education at the head of the Department is advised by the Central Council on matters referred to it. The system of administration is highly centralized, though there has been a gradual devolution of authority. For administrative purposes the country is divided into nine educational units corresponding to the nine provinces, each under the control of a provincial education officer who is assisted by District Inspectors, Inspectors of Schools, Specialist Inspectors and Supervisors of Schools. The Inspectors of Schools, working under the guidance of District Inspectors, are in closest touch with the schools, and are supposed to visit each Government School three times a year including one Annual Inspection visit.

Pop. (1967 est.) 11,701,000. *Edu.* (1965-66): Primary and Secondary, schools 9,552, pupils 1,656,191; Teacher training, colleges 24, students 5,550; Higher, universities 3, students 14,748. Public expenditure on education (excluding universities) (1965) 323 million Rupees; 4.7% of national income.

CHAD

Chad is a republic which acquired its independence in 1960, and adopted its own constitution in 1962, which was amended in 1964 and revised in 1965. The Constitutional Law (1962) stipulates that French shall be the medium of instruction, but special attention shall be paid to the teaching of Arabic. Education shall be free in all the institutions of the Republic. The recent educational reform has fixed the duration of compulsory schooling at 4 years. After the 4th year, 50% of the pupils will be selected to pursue general education, while the remaining 50% will be diverted towards ruralized education.

At the age of 7 years children begin primary education, which normally lasts 6 years. There is also a large number of Koranic schools. The primary schools lead to the primary school certificate and also to the examination providing access to the secondary and technical education. Secondary general and secondary vocational education last for six years each and teacher training 3 years. The educational programme modelled on the French pattern is now being gradually reorganized.

The central administration of education consists of the Cabinet, General Secretariat of Education and the Inspectorate. The Secretariat under the Minister of Education formulates policies and executes them, while the Inspectorate supervises the educational services. The Republic is divided into 6 educational regions, each under the control of a Chief Inspector.

There is no institute of higher education, which is, however, the responsibility of the five State members representing the Foundation for Higher Education in Central Africa—France, Congo, Gabon, Central African Republic and Chad.

Pop. (1967 est.) 3,410,000. *Edu.* (1967-68): Primary, pupils 178,693, teachers 2,406; Secondary, pupils 8,223, teachers 331; Technical and vocational, pupils 727, teachers 53. *Edu. budget* (1967) about 1,622 million CFA Francs; 15.4% of State budget.

CHILE

The constitution guarantees freedom of education, makes primary education compulsory and stipulates that public education shall be a principal concern of the State. The law on Compulsory Primary Education establishes the principle of compulsory schooling between the ages of 7 and 15 and up to the sixth year of primary schooling. Both tuition and books are provided free to children in State primary schools. Privately maintained primary and vocational schools receive annual grants for each pupil amounting to half the cost of maintaining a pupil in the corresponding State establishment.

Pre-primary education is available to children between the ages 2 and 6 in kindergarten forming part of primary schools or in independent pre-primary centres known as infant schools or nursery schools. Primary education consists of three courses (*grados*) each of two years. An elementary school of 2 years providing only the first course is termed as 'third class'; an elementary school of 4 years providing the first two courses is termed as 'second class'; a complete primary school of 6 years providing all the three courses is termed as 'first class' or higher primary school. A higher primary school may sometimes add a fourth course of vocational training for one to three years. The secondary education is provided in public *liceos* or private *colegios* comprising a 6-year course divided into two stages. The first four years provide instruction on basic disciplines and skills almost compulsory for all, the last two years are meant as preparation or specialization for higher education or advanced professional studies. Preparation for democracy, all-round development of the personality, and preparation for earning a living are the three fundamental aims of secondary education.

Teachers for primary schools are trained in normal schools of secondary level of six-year duration. The admission to these schools is secured after the candidate has completed the sixth year of primary schooling and has passed

the admission test. Higher education is available in two public universities (the National University of Chile and the Technical University) and several private universities, but the National University of Chile has the monopoly of conferring certain degrees.

A single centralized form of national education is provided throughout the country. The Minister of Public Education is responsible for education and the Ministry of Education comprises four general directorates concerned with the specific fields of primary and teacher education; secondary education; agricultural, commercial and technical education; and library, archives, and museums. These general directorates, each under the charge of a Director-General, carry out school inspection through their inspecting departments. The Ministry of Education also includes the Superintendency of Education which is made up of the Technical Office for Educational Research and Special Services, the National Fund for Education, and the National Council of Education, the latter being the most important body responsible for advising the Minister on matters of educational policy.

Pop. (1968 est.) 9,457,797. *Edu.* (1967): Students in primary schools 1,874,414, in general secondary schools 168,208, and in eight universities about 44 thousand. Public expenditure on education (1964) 432 million Escudos; 3.4% of national income.

CHINA, PEOPLE'S REPUBLIC OF

The constitution guarantees the right to education to all citizens and stipulates that the State shall establish the various types of school and other cultural and educational institutions and will pay special attention to the physical and mental development of young people. It is specified that education shall be national, scientific and popular in character.

Pre-school education is provided in *yo er yuan* (kindergartens) for children 3 to 7 years old. Primary school, known as *hsiao-hsueh*, begins at the age of 7. The old six-year primary course, consisting of four years of lower primary stage and two years of higher primary stage, is being replaced by a single continuous course of five years. After completing the primary school a pupil may enter the general secondary (or middle) school or any of the various vocational secondary schools through a competitive examination. The general secondary (or middle) school course lasts for 6 years and is divided into lower and upper stages of 3 years each. The need for a close link between schooling and productive labour is stressed.

The Central Ministry of Education under the State Administrative Council controls and supervises pre-primary, primary, secondary and adult education, teacher training and special education. The Ministry of Higher Education controls and supervises the institutions of higher learning and the intermediate technical schools. The Ministry of Education consults the various educational authorities and educationists through centrally organised conferences.

CHINA (TAIWAN), REPUBLIC OF

The constitution (1947) provides that the nation's educational and cultural services shall have as their aim the development of a national spirit, democratic ideals, traditional morality, good physique, scientific knowledge, and the ability to earn a living, and that all children from 6 to 12 years shall receive free primary education and those from poor families shall be supplied with textbooks at the expense of the government.

Pre-primary education in the kindergartens lasts for two years for children 4 and 5 years old. Education is compulsory and free for children from 6 to 12 years of age. The primary schools last for 6 years. After completing the six-year primary schooling pupils enter the secondary schools through an entrance examination. The secondary education is divided into two cycles—lower and upper. The lower cycle consists of 3-year junior academic high school or 3-year vocational high school. After completing the lower cycle, the pupils can enter the upper cycle of secondary education through another entrance examination. The upper cycle consists of various categories of schooling including general secondary education (3 years), teacher training (3 years) and technical school (5 years). The aims of secondary education are: development of a healthy physique, development of national culture, development of knowledge and skills for better living, formation of good habits, cultivation of good citizenship, and cultivation of artistic appreciation.

The Ministry of Education is the central education authority which exercises over-all control through the operation of laws and regulations and through inspections and supervision. Higher education is administered and directed by the Central Government; the secondary education by the provincial government under the general guidance of the Ministry of Education; the primary education by municipal governments under the general guidance of the provincial department of education. Educational

authorities at the central provincial and municipal levels have their own supervisory staff.

Pop. (1967 est.) 13,142,000. *Edu.* (1967-68): Primary, pupils 2,348,218, teachers 55,684; Secondary (high schools), pupils 640,447, teachers 28,728; Secondary (vocational schools), pupils 143,296, teachers 9,407; Higher education (including 12 universities and 66 colleges), students 138,613, teachers 13,340. Public expenditure on education (1965) 3,130 million new Taiwan Dollars; 3.4% of national income.

COLOMBIA

The constitution (1945) guarantees freedom of education and stipulates that the State shall exercise general supervision of institutions of learning so that the social aims of culture and the best intellectual, moral and physical development of the students are achieved, and provides that primary education shall be free and compulsory 'upto the grade determined by law'.

There are both public and private kindergartens generally for the ages 5 and 6. School attendance is compulsory between the ages of 7 and 14 provided that the requisite facilities are available in the locality. The primary education is carried on in three types of institutions: the double-session rural school with a two-year course; the non-coeducational rural school with a 4-year course; and the urban school with a 5-year course. The secondary education is meant for young people between 12 and 19 years of age, and is intended to provide the pupils with a general cultural background and to prepare them for a useful occupation or for the efficient pursuit of higher studies. The education at the secondary level includes general secondary school (6 years), teacher training school for secondary level (6 years), teacher training school for elementary level (4 years), vocational school of industrial arts (5 years), vocational school of commerce (6 years) and vocational training school of agriculture (3 years). The general secondary schools known as *colegios*, *liceos*, or *institutos* consist of a six-year course, organized in lower and upper cycles, leading to the diploma of *bachiller*. Higher education is provided in public and private universities, the commercial and technical institutes and the higher normal schools. Students must have the *bachiller* diploma before entering a university.

Public education is administered and directed by the Minister of Education assisted by the Higher Council of Education. At the provincial level the education department is headed by a director appointed by the Minister.

Local governments discharge their responsibility for primary education through Boards of Education. Supervision is carried out co-operatively by central, provincial and local officials.

Pop. (1968 est.) 19,829,000. *Edu.* (1968): Primary, pupils 2,733,432, teachers 100,629; Secondary (general), pupils 405,778, teachers 38,600; Secondary (technical and vocational), pupils 121,739, teachers 13,247; Secondary (teacher training), pupils 54,004, teachers 5,392; Higher education (including 28 universities), students 62,844, teachers 8,918; *Edu. Budget* (1968) 1,391,568,000 Pesos; 13.5% of State budget.

CONGO, DEMOCRATIC REPUBLIC OF

The Democratic Republic of Congo (Kinshasa) became independent in 1960 and adopted its constitution in 1964, which has been supplemented, following a referendum, by another in 1967. The constitution provides free and compulsory education for all children from 6 to 14 years of age, but this ideal provision is subject to the availability of school buildings in all areas.

Primary education covers six years. General secondary education consists of two cycles: the lower cycle of 2 years involves orientation and guidance; the upper cycle is of two types, one of two years combining academic instruction with vocational training, and the other of 4 years offering courses in humanities, science, commerce, teacher training, industrial techniques and other branches. Different technical schools have been organized and located in regions where there are opportunities of employment. There are three universities and 22 higher institutes. University education is the main factor in the economic and social development of the country.

The Ministry of Education is responsible for establishing standards for all levels of education throughout the country, and solely controls university and higher education. The governors have some administrative control over primary and secondary education in their respective provinces.

Pop. (1967 est.) 16,354,000. *Edu.* (1967-68): Primary, pupils 2,543,200, teachers 57,850; Pupils, in secondary (general) 118,800, in secondary (technical and vocational) 14,450, in secondary (teacher training) 18,600; Teachers, in all types of secondary education 7,100; Higher education (including 3 universities and 11 colleges), students 5,470, teachers 720. *Edu. budget* (1968) 21,643,623 Zaires; 19% of State budget.

CONGO, REPUBLIC OF

The Republic of Congo (Brazzaville) became independent in 1960 and adopted its own constitution in 1963. The basic law on education is the Law No. 44/61 of 28 September, 1961, which provides that : every child has the right to an education which will ensure the full development of his intellectual, artistic, moral and physical aptitudes as well as his proper training both physical and professional ; school attendance is compulsory between the ages of 6 and 16 years ; education shall be free and during the period of compulsory education school supplies shall also be free.

The education system was built on the French pattern with primary education of 6 years and secondary education of 7 years available in *lycees* and *colleges* consisting of two cycles of four and three years each. Now the pattern is changing with primary education lasting 10 years up to the general intermediate certificate (BEMG), and secondary education 3 years. Compulsory schooling of 10 years applies to boys up to the age of 16 years and girls up to the age of 17 years. After obtaining the general intermediate certificate one can enter into the teacher training course of one year or teacher training school of 3-year course.

The Ministry of Education is responsible for pre-school, primary, secondary, technical, vocational and higher education. Agricultural education is the joint responsibility of the Ministries of Education and of Stock-Breeding and Agriculture. Higher education is controlled by five State-members of the Foundation for Higher Education in Central Africa—France, Congo, Gabon, Chad and Central African Republic.

Pop. (1968 est.) about one million. *Edu.* (1967-68) : Primary, pupils 207,595, teachers 3,474 ; Secondary (general), pupils 18,253, teachers 597 ; Secondary (technical), pupils 2,437, teachers 281 ; Secondary (teacher training), pupils 562, teachers 50 ; Higher, students 378, teachers 31. In 1968, the educational budget was 18.6% of State budget.

COSTA RICA

The constitution (1949) makes the following provision : Primary education is compulsory and free ; pre-school and secondary education is also free and the State shall provide facilities for the pursuit of higher studies by persons of inadequate financial means ; The State shall supply food and clothing to indigent school children ; Private initiative in education should deserve encouragement by the State.

There are both public and private kinder-

gartens for children of 5 and 6 years of age. School attendance is compulsory for children between ages 7 and 14, provided a school exists within a radius of 2 kilometres from their homes. There are three types of primary schools : Category I school with full six-year primary course ; Category II school with a five-year course ; and Category III school with a partial course of one to four years. The secondary education lasts five years and consists of two cycles. The first cycle of basic general course is of three years, and the second cycle of specialization in the arts, sciences or vocational subjects is of two years leading to the *baccalaureat* degree for entrance into a university or a higher normal school. There are also three-year complementary schools providing a combined general and vocational terminal course. Higher education is provided in the National University.

The education system is centralized. It is administered by the Minister of Public Education with the advice of *Consejo Superior de Educacion*. Provinces have Provincial Board of Primary Education and the cities and towns have local boards. The secondary schools are administered by semi-independent administrative boards.

Pop. (1967 census) 1,599,371. *Edu.* (1967) : Primary, pupils 315,547, teachers 9,446 ; Secondary (general), pupils 57,716, teachers 2,460 ; Secondary (vocational), pupils 3,689, teachers 195 ; Secondary (teacher training), pupils 1,431, teachers 72 ; Higher (including one university), students 7,200 ; teachers 546. *Edu. budget* (1967) 205,068,130 Colons ; 27.9% of State budget ; 5.4% of national income.

CUBA

The Fundamental Law promulgated in 1959 makes the following provision : Primary education shall be compulsory ; Pre-primary, primary and vocational education shall be free when provided by the State, province or municipality, and necessary school supplies shall also be free ; Lower secondary and all higher education when given in public establishments shall be free ; The State shall maintain normal schools.

Chief cities have kindergartens for children between the ages 3 and 5. Education is compulsory for children between the ages 6 and 12, and up to the sixth grade of primary school. Primary school consists of six grades. In rural schools, the six grades may be divided into three courses of 2 years each : preparatory, intermediate and higher. The boys who are unable to continue academic studies after the fourth grade are provided practical and apprentice training

in manual, agricultural and industrial schools. The secondary education of six years is divided into two stages of 3 years each. The first 3 years of basic instruction are necessary for acquiring specialized training at an advanced level. The second stage of 3 years may cover pre-university, professional or vocational training in pre-university institutes, primary normal schools, industrial or agricultural institutes, or in schools of fine arts and commerce.

The educational system is under the technical and administrative direction of the Minister of Education who has final authority regarding policies, programmes and national standards. Administrative powers and functions are delegated to provincial departments of education, and below them, to local municipal departments.

Pop. (1967 est.) 7,937,200. *Edu.* (1967-68): Primary, pupils 1,391,147, teachers 46,910; Secondary (general), pupils 177,087, teachers 11,276; Secondary (technical and vocational), pupils 46,732, teachers 3,649; Teacher training, pupils 23,308, teachers 951; Higher (including 3 universities), students 35,046, teachers 4,499. *Edu. budget* (1968) about 336 million Pesos.

CYPRUS

Cyprus is a republic which acquired its independence in 1960 and adopted its own constitution in the same year. Each of the two communities—Greek and Turkish—elects a Communal Chamber having the legislative and administrative authority concerning educational and cultural matters related to its own community. The constitution has provided free and compulsory primary education for the children of both the communities.

The educational systems of the two communities are similar to those operative in Greece and Turkey respectively. Primary education in both the communities is compulsory and covers 6 years for children between the ages of 5 years 5 months and 14 years. At the secondary stage, on the one hand there is the Greek 6-year *gymnasium* preparing for admission to a university in Greece, and on the other hand there is the Turkish *orta okul* consisting of 3-year lower secondary school followed by another 3-year of classical or modern course leading to a university entrance in Turkey. Secondary technical education lasts 6 years, vocational education 4 to 5 years, and teacher training 3 years. Responsibility for education rests mainly with the Ministry of Education, but the Ministries of Labour, Agriculture, Justice and Health are also responsible to some extent for vocational education in their respective fields.

Pop. (1967 est.) 614,000. *Edu.* (1967-68): Primary, pupils 72,256, teachers 2,205; Secondary, pupils 29,196, teachers 1,295; Teacher training, pupils 154, teachers 11. *Edu. budget* (1967-68) £4,492,000; 15% of State budget; 2.5% of national income.

CZECHOSLOVAKIA

The constitution (1948) contains the following provision: Every citizen shall be entitled to education; All schools shall be State schools; Basic school instruction shall be uniform, compulsory and free; Education and teaching shall be in conformity with the findings of scientific research and shall not be at variance with the system of people's democracy as a form of government; Supreme authority and supervisory powers over education and teaching shall be vested in the State.

Medium of instruction is Czech or Slovak, or the languages of the national minorities (Polish, Ukrainian, Hungarian). In the school system, various stages of education and various types of schools are organically linked. Pre-primary education is available for children up to the age of 6 in the creches and nursery schools. Compulsory schooling is for nine years in the nine-year primary school for children between the ages 6 and 15. There is a school association for the first to fifth year pupils and a school club for the sixth to ninth year pupils. Primary schools provide basic education and have uniform schooling and curriculum for both rural and urban areas.

The pupils after reaching the age of 15 are assured secondary and higher education. Secondary education consists of general, polytechnic, and vocational education of every kind and scope. The various types of post-primary schools offer courses combining teaching and productive work, and include general secondary schools, secondary schools for workers, schools for apprentices, vocational centres, trade schools, technical schools belonging to factories, and schools for music and dancing. The general secondary school of tenth to twelfth years of schooling (3 years) is usually organized as part of a 12-year school and provides, in addition to complete secondary education (general and polytechnical), the elementary special training for work in a particular branch of national economy. The secondary schools for workers are meant for those who have undergone apprenticeship for 2 or 3 years after 9-year compulsory schooling. These schools of 3 years' duration provide complete secondary education and further develop the vocational knowledge and experience

through evening courses or correspondence courses.

Higher education is the higher vocational training given in specialized institutes, some of which are attached to factories. Their purpose is to educate and train for industry, agriculture, science, the arts and other branches of social activity. The only teacher training is for nursery school teachers; it is provided in technical secondary schools through a four-year course.

The Ministry of Public Education and Culture exercises centralized control and supervision from the ideological and educational standpoint, and is responsible for the direction and supervision of education. In the regions and districts, the national committees look after education through their education and culture section. Other bodies responsible for technical education

are the Ministry of Public Health and Ministry of Agriculture and Forestry. The central inspectors of the Ministry of Public Education and Culture are particularly concerned with technical inspection; the regional inspectors supervise the vocational schools and schools of general education; the district inspectors supervise all the schools in their district.

Pop. (1967) 14,333,259. *Edu.* (1967-68): Elementary (9-year schools), pupils 2,109,183, teachers 97,505; secondary (general), pupils 97,865, teachers 6,409; Vocational and vocational secondary, pupils 189,616, teachers 13,796; Special, pupils 56,447, teachers 4,806; Higher (including 9 universities), students 95,872, teachers 15,619. *Edu. budget* (1968) 12,226.2 million Czechoslovak Crowns.

D

DAHOMÉY

Dahomey is a republic governed by a national restoration committee which functions as a National Assembly. It became independent in 1960 and adopted its own constitution in 1968. The Ministry of Education is responsible for pre-school, secondary, vocational, technical and higher education. Ministry of Rural Development and Co-operation looks after agricultural education and Ministry of Health looks after the Health School.

Primary education lasts 6 years with the possibility of repeating two classes, the age limits being 6 to 12 or 14 years, or 8 to 14 or 16 years. Longer general secondary education available in *lycees* and *colleges* provides 7 years of classical or modern secondary education divided into two cycles of 4 and 3 years respectively. Shorter general secondary education lasts 4 years, shorter technical education 2 or 3 years, and teacher training one year. For higher education some students go to France.

Pop. (1968 est.) 2,480,000. *Edu.* (1967-68): Primary, pupils 139,734, teachers 3,451; Secondary, pupils 13,354, teachers 447; Technical, pupils 410, teachers 69; Higher, pupils 115, teachers 9. *Edu. budget* (1967-68) about 1,983 million CFA Francs; 24.7% of State budget.

DENMARK

Schooling is based on the Education Act of 1958 which lays down the basic framework

consisting of a 7-year primary school, voluntary eighth, ninth and tenth classes, a three-year examination division known as a *realafdeling* and grammar school. All education at publicly run schools is free.

Pre-primary education is mostly organized on a voluntary basis and most nursery schools are privately organized. Education is compulsory between 7 and 14 years of age, but school attendance is not. The primary education is carried on in 7-year comprehensive schools. After the first five school years a division of the children is made according to outlook, ability and interests into general and literary classes known as 'a' and 'b' classes respectively. But if the parents so wish, classes may continue undivided through the sixth and seventh years, and such classes are then known as 'c' classes. Danish and arithmetic are taught from the first class and up, gradually being supplemented by a number of other subjects. Physics and at least one foreign language are introduced in the sixth class, and two foreign languages (usually English and German) and mathematics are taught in the seventh class.

In the eighth, ninth and tenth classes on the 'a' line, instruction is given in general and occupationally oriented subjects which lead up to a technical preparatory examination giving access to short technical courses. On the 'b' line, pupils found suitable may go to the three classes (1st, 2nd, and 3rd *real* classes) of the

examination division (*realafdeling*). The three years complete a 10-year period of schooling and end with a school leaving examination, which entitles the successful candidates to advance to various forms of higher education. Admission to a grammar school (*gymnasium*) normally takes place after two years in a *realafdeling* on the basis of the results of a test and recommendations of the school. Grammar school courses are diversified: in the first class it is divided into the language line and the mathematics line; in the second and third classes the language line is subdivided into the modern languages, classical languages and civics groups, and the mathematics line is subdivided into mathematics and physics, natural science and civics groups. The grammar school courses lead to matriculation examination.

Higher education is given at commercial colleges, technical colleges, institutes of higher learning and universities. Denmark's most important contribution to adult education is the Folk High Schools which are now found in many European countries. It mainly aims to arouse interest in the community and to develop ability to appraise and form an independent opinion of social problems. Teachers at primary schools are trained at teachers' training colleges. Teachers at *gymnasiums* must have a university degree.

The Ministry of Education is the supreme supervisory authority for education. Primary schools, which apart from the 7-year general primary classes may also include eighth, ninth and tenth classes and, or, a *realafdeling*, are run by the local authorities and private organizations which receive State grants. The grammar schools are run by the State, the local authorities or private organizations.

Pop. (1968 est.) 4,854,721. *Edu.* (1967-68): Primary, pupils 523,000, teachers 36,350; Secondary, pupils 179,500, teachers 3,290; Technical and vocational, pupils 139,450,

teachers 2,350; Teacher training, pupils 21,560; Higher (including 3 universities at Copenhagen, Aarhus and Odense), students 38,000, teachers 4,800. Budget of the Ministry of Education (1967-68) 3,639 million Danish Crowns; 20% of State budget; 4% of gross national product.

DOMINICAN REPUBLIC

The constitution stipulates that primary instruction shall be under the supervision of the State and shall be compulsory for children of school age and that this instruction in official institutions shall be free.

Pre-primary education is available in public and private kindergartens, but their number is very small. Education is compulsory from the age of 7 to 14. Primary education consists of a six-year course, divided into three stages of two years each, known as elementary primary education. This leads to a two-year course, known as intermediate education which prepares the pupils for secondary schools. Secondary education proper consists of 4-year course—three years common to all, but the fourth year devoted to specialization for prospective university students and higher normal school pupils—leading to *bachillerato* diploma. Higher Education is provided in the various faculties of the University of Santo Domingo. The centralized educational system is headed by the Minister of Education and Fine Arts, who is advised by a National Council of Education. The country is divided into five departments, each headed by a Superintendent of Education. Each department is further subdivided into school districts headed by District Inspector of Education.

Pop. (1968 est.) 4,029,420. *Edu.* (1967-68): Enrolment—Pre-school and Primary 649,000; Secondary 76,000; Vocational 2,475; Teacher training 550; Two universities, over 6 thousand students. In 1968, the educational budget was 16.7% of State budget and 3% of national income.

E

ECUADOR

The constitution (1946) includes the following provision relating to education: Education of children is primarily the responsibility and prerogative of their parents, but the State shall ensure the discharge of such responsibility and shall facilitate the exercise of such prerogative;

Primary education shall be compulsory; Primary and technical education in public establishments shall be free; The State shall establish and maintain special institutions for free training in the arts, crafts, commerce, agriculture and other kinds of remunerative work; The State shall respect the right of parents to give their children

the kind of education they deem most appropriate.

The kindergartens, mostly State-supported, are only available in the large cities for the children 4 to 6 years old. Primary education is compulsory for the ages of 6 to 14 years. Primary education consists of a six-year course in urban schools and a four-year course in rural schools. The six-year course is subdivided into elementary (first and second grades), intermediate (third and fourth grades) and higher (fifth and sixth grades). The secondary schools offer four diploma programmes of all six years, in modern humanities, classical humanities, education and technical education. The completion of the six-year secondary course enables students to enter appropriate faculty of a university or a specialized institution of higher studies.

Rural primary teachers are trained in rural normal schools of 4-year course on the secondary level. Urban primary teachers are trained in urban normal schools of 6-year course on the secondary level. Secondary teachers must have a university degree. Vocational education is given in secondary schools of industrial arts and technical colleges through terminal or university preparatory courses.

The Minister of Education is the final authority for pre-primary, primary and secondary education. Two advisory bodies—the Fellowship Committee and the National Education Council help him in the matter. The Ministry is divided into two sections—technical and administrative. The Director-General of Education is the head of the technical section. In each province, education is administered by the Provincial Bureau of Education headed by a director who supervises education through the assistance of inspectors. The provinces are subdivided into cantones, each with a municipality which provides a fixed percentage of its revenue to education.

Pop. (1967 est.) 5,508,000. Edu. (1966-67) : Primary, schools 6,760, pupils 841,752, teachers 22,118 ; Secondary (general), schools 278, pupils 72,638, teachers 6,644 ; Technical, schools 225, pupils about 41 thousand ; 7 Universities and 2 Polytechnics, students 15,783. Public expenditure on education (1965) 610 million Sueres ; 3.5% of national income.

EL SALVADOR

The constitution (1950) includes the following provision : All citizens have the right to a basic education which shall comprise the primary level and when imparted by the State shall be free ; Officially imparted education shall be

secular ; Training of teachers shall be the exclusive responsibility of the Government.

Pre-primary education in kindergartens is available in large towns for children between 4 and 7 years of age. The official curriculum is compulsory for all pre-primary schools. Six-year primary education is compulsory for children between 7 and 14 years of age, though many schools in rural areas provide less than the full course. The secondary education is organized in two stages. The first stage consists of the basic course of the lower general secondary education (*plan basico*) of 3 years' duration. It leads to the second stage of 2-year upper general secondary education (*bachillerato*), or to commercial studies (2 or 3 years), teacher training (3 years), military training (4 years), and various vocational courses. A student after completing the teacher training (3 years) in the urban normal school may either take up teaching or go on to the Higher Normal School at the university level for an advanced degree. Entrance to the university requires the *baccalaureat* or its equivalent and the passing of an admission examination.

The education system is highly centralized. The Minister of Culture represents the supreme authority for national education. He is assisted by the National Council of Education, an advisory and planning body. Each primary school district is supervised by an education officer.

Pop. (1967 est.) 3,151,000. Edu. (1967) : Primary, pupils 473,449, teachers 13,220 ; Secondary, pupils 48,536 ; Teacher training, pupils 3,362 ; Commercial, pupils 15,710 ; Two universities, students over 4 thousand. Edu. budget (1967) 63,521,758 Colons ; 25.7% of State budget.

ETHIOPIA

Proclamations, decrees, orders and legal notices form the legal basis for the educational system. The Act of 1950 federating Eritrea with Ethiopia under the sovereignty of the Ethiopian Crown guarantees the right to education. Order No. 1 of 1943 defines the powers and duties of the Minister of Education and Fine Arts who is responsible for the development of education and arts.

The importance of nursery and kindergarten classes is recognized. The official age for admission to government schools is from 6 to 7 years. The 8-year elementary schooling is divided into two stages. The first stage consists of 4 years in a primary school or community school for basic education. The second stage consists of 4 years of a middle school. There are also 8-year

elementary schools containing both the stages. The types of schooling at the secondary level include secondary school, commercial school, technical school, agricultural school, nurses training school, and elementary teacher training school, each offering a 4-year course. There are, however, shorter courses in some branches of specialized training, as in civil aviation school, telecommunications school and building trades school. The principal aim of academic secondary school is to prepare students for admission to the different college programmes. Higher education is co-ordinated under the control of Haile Selassie I, University at Addis Ababa. At the secondary and university levels the medium of instruction is English. The Ministry of Education and Fine Arts has the responsibility for the

administration, supervision and inspection of schools. Ministerial responsibility rests with the Board of Education appointed by the Emperor. Next in authority are the Vice-Minister and the Director-General. There is an inspection department under a Chief Inspector who has inspectors under him in all provinces. Each province has an education officer responsible to the Vice-Minister and the Director-General.

Pop. (1967 est.) 23,667,000. *Edu.* (1967-68): Primary, pupils 451,000, teachers 9,820; Secondary (general), pupils 71,400, teachers 2,750; Technical and vocational, pupils 5,820, teachers 500; Teacher training, pupils 1,810, teachers 120; Two universities, students about 3 thousand. *Edu. budget* (1967-68) 63,451,797 Ethiopian Dollars; 13.6% of State budget.

F

FINLAND

The constitutional law (1919) provides that it is the obligation of the State and the communes to support primary schools and compulsory education, and the instruction in the primary school shall be free to all, and the State shall maintain or subsidize schools providing advanced general education (secondary education) or higher popular education (adult education).

In the town, there are kindergartens for children between 3 and 6 years of age, and children's day nurseries for taking care of little children while their parents are at work. It is compulsory for all children between the ages 7 and 16 to attend school regularly for at least 8 years. In rural areas the primary school is based on a 7-year course followed by one-year continuation course, and in urban areas the course lasts for 6 years followed by two-year continuation course. Education is free and pupils also receive a free hot meal each day and free text books. Since the secondary school is not based on the complete course of compulsory education, pupils generally proceed to secondary school after 4 years of primary school. The secondary education of 8 years is usually divided into two stages: the junior secondary school and the senior secondary school, the latter preparing pupils for study at the university level. The junior secondary schools consist of 5, 4 or 3 grades and are based correspondingly on courses of 4, 5 or 6 years at the primary school

level. Children who do not proceed to the secondary school after the 4th grade of the primary school, receive the remaining compulsory education at the citizen's school. A student instead of continuing his studies in a citizen's school or junior secondary school, may also transfer to a preparatory vocational school. The primary school teachers have to undergo 6 years of study after the primary school or 4 years of study after the junior secondary school. Secondary school teachers require a university degree.

The Ministry of Education exercises its control and administration through the Central Board of Schools. A teacher's council serves the Central Board of Schools. Primary schools are established and maintained by the local authorities (*communes*) with the assistance of the State. Principals of the State secondary schools are appointed for periods of five years by the Central Board of Schools from among the schools regular teaching staff after considering the reports from the staff and from the parents' council. There is an office of supervision under the Board for the inspection of schools.

Pop. (1967 est.) 4,664,000. *Edu.* (1967): Primary, schools 6,080, pupils 508,700, teachers 23,090; Secondary, pupils 295,205; Technical, vocational & commercial, pupils 72,631, teachers 6,573; Teacher training, pupils 225, teachers 47; Higher (including six universities), students over 36 thousand. Public expenditure on education (1965) 1,538 million Marks; 7.4% of national income.

FRANCE

For more than a century, France has had a definitely centralized system of education catering for selected minority and geared to a classical academic curriculum. The French education is now undergoing a radical transformation. The Ordinance and the Decree of 6 January, 1959 introduced reforms to the public education system with effect from October 1960. It has extended compulsory schooling to the completion of 16th year for all children born on or after 1 January 1953, has done away with the water tight divisions between branches at the secondary level, has provided opportunities for choice and transfer, and has tried to give each child an education suited to his aptitude. In the present educational system there is an effort towards delegation of powers and decentralization. Technical education is enormously expanding at all levels. The Commission responsible for preparing the 5th School Plan (1966-70) has, however, found it difficult to receive all children between 14 and 16 years under suitable conditions before 1972. Nevertheless, it has been planned to carry out the extension of the school leaving age, during the period of transition, by authorizing those who will not be able to continue their schooling, to undertake or continue vocational training. The student strikes and demonstrations of May-June 1968, beginning in the Sorbonne and spreading to other university centres and *lycees*, led to the introduction of a bill for educational reform providing for greater autonomy for the universities, greater freedom for students, and half the membership of students and junior staff in the elected administration councils.

Public education is free. Education is compulsory from the age of 6 to 16. Compulsory attendance begins after the nursery school stage and comprises five years of primary education, 4 years in the first cycle of secondary education and one year in the second cycle. Children from 2 to 6 years of age are taught in the nursery schools and infant's classes attached to a primary school. The methods used are partly based on Montessorian and Decrolyan Systems and yet present a degree of originality. Primary education lasts 5 years for children between the ages 6 and 11, and is provided in primary schools for boys and girls or in mixed institutions. Education at this level includes the teaching of French, reading and writing, as well as a basic knowledge of mathematics and the sciences, history and geography. This programme is supplemented by a moral, civic, physical, artistic and musical education with local variations.

The secondary education has two cycles. The first cycle consists of 4 years for children from 11 to 15 years of age. During these four years, changes and transfers from one course to the other may be made frequently on advice from teachers' councils and guidance councils. The first two years provide the diagnostic course (*cycle d'observation*) and selection for different types of courses is generally deferred until the age of 13. During these two years pupils may be guided towards the classical section (with Latin), or the modern section (with French and extra foreign languages), or to transition classes attached to general secondary schools with possibilities of transfer (if aptitudes warrant it) to other sections. Those who do not transfer from the transition classes follow a practical training course in the last two years of the first cycle, and then complete their compulsory schooling at one-year general course in the second cycle, with pre-training in commerce, industry or agriculture. Students at the classical or modern section at the end of the first two years may choose between one of the five possibilities open to them: two classical sections, two modern sections, and a practical section. They may also go into a vocational education section or technical school after 14 years and remain there for two years. The first cycle education is provided in *lycees* (classical and modern sections) or in general education colleges (transitional sections and modern sections with classical sections for a few pupils) or in the secondary education colleges (all sections).

A new choice is again made at the end of the first cycle: either towards a short second cycle, or a long second cycle, or towards an active life with part-time education until the age of 17. The second cycle is for children from 15 to 18 years of age. The short second cycle sometimes known as 'short education', lasts 2 years and provides either specialized training leading to 'certificate of professional aptitude', or a wider type of vocational education rewarded with a diploma for industrial, commercial administrative or agricultural studies which could eventually lead to a 'technical agent's diploma'. This type of education is available in technical education colleges, agricultural colleges and in special sections of technical *lycees*. The long second cycle, sometimes known as 'long education', lasts 3 years and leads to a technician's diploma in industry, commerce or agriculture, or to the *baccalaureat* (secondary school leaving certificate required for admission to institutions of higher education). The 'long education' is provided

in classical, modern, technical and agricultural *lycees*. Corresponding to the 5 sections of the final class (last year of the long second cycle) there are 5 series of the *baccalaureat*: A—philosophy-arts; B—economics and social; C—mathematics and physical sciences; D—mathematics and the sciences of nature; E—mathematics and technical. Higher education is provided in three types of institutions: the universities and university institutions, the higher teacher training institutions, and the *grades ecoles*. There is a university in the chief town of nearly every academy, the educational administrative region. Each university usually includes a faculty of science, a faculty of letters and the human sciences, a faculty of medicine and a faculty of pharmacy, or a mixed faculty of medicine and pharmacy, or a national school of medicine and pharmacy. The first university degree is the *licence* for which the course is divided into two parts: the first part lasting one year is a general preparatory course and the second part covers two or three years. Those intending to become teachers may either sit for the *certificat d'aptitude* authorizing them to teach at the secondary level or continue their studies for post-*licence* diploma entitling them to take the *agregation* competitive examination for senior teaching posts. The recruitment and promotion of teachers are based essentially on the competitive examination system. The *agregation* is not a university degree. It implies success in a competitive examination of a very high standard for entry into certain ranks of the civil service, and involves a great prestige. *Grandes ecoles* are advanced institutes providing specialized professional studies. These institutes prepare the best brains in the country for careers in administration, education, industry, commerce, the army, the navy, public health,

etc. Candidates are admitted after an extremely competitive entrance examination. For those who succeed, this type of education is entirely paid by the *Stâte*.

The Ministry of Education is responsible for pre-school, primary, secondary, vocational, technical and higher education. Agricultural schools, certain *grandes ecoles* for engineers or officers, rehabilitation centres, special schools for the handicapped and reform schools are controlled by other Ministries. The Ministry of Education administers the various types of education through a general inspectorate and a number of departments and general services. For purposes of educational administration France is divided into 23 educational districts which are called academies. At the head of each academy is a rector, a Senior Civil Servant appointed by the President of the Republic, usually from university professors. The rector represents the Minister of Education in his academy and is responsible for controlling, guiding and supervising educational institutions of all types and all levels. Under his charge are several departments (educational zones), each headed by a Chief Education Officer (*inspecteur d'academic*) responsible for all educational services in his department except higher education which comes under the direct control of the rector.

Pop. (1967 est.) 49,866,000. *Edu.* (1966-67): Elementary and special, pupils 4,993,431; Secondary and technical, pupils 3,980,762, teachers 204,025; Teacher training, pupils 34,000; teachers 2,063; 23 Universities, students 459,470, teachers 20,969. *Edu. budget* (1968) 20,519.5 million francs; 16.5% of general State expenditure; 4.8% of national income; 3.6% of gross national product.

G

GABON

Gabon is a republic which acquired its independence in 1960 and adopted its own constitution in 1961 which was revised in 1967 and again in 1968. Under the constitution the Republic is responsible for the 'organization and principles of education'. The Ministry of Education and Civic Service controls all schools. Nursery schools are dealt with by the social education centres of the Gabonese National Women's Organization. Primary education is

free and compulsory for children between the ages of 6 and 16 years and normally covers a 6-year course. Secondary education consists of a short course of 4 years and a long course of 7 years. A junior teacher training school at lower secondary level provides 4 years of general education and a year of professional training. For higher education, selected students go to France.

Pop. (1968 est.) 630,000. *Edu.* (1968): Enrolment—Primary 85,328; Complementary 2,635; Secondary 2,914; Technical 1,539;

Teacher training 133. Edu. budget (1968) about 2,117 million CFA francs.

GAMBIA

Gambia is a republic. The Government and the mission schools provide education. Responsibility of education rests with the Minister of Education. The Director of Education carries out the educational policy and administers and supervises the school education. Educationally there is a marked contrast between two areas: the progressive Colony area including Bathurst, and the much larger hinterland known as the Provinces. About half the schools are concentrated around Bathurst, the chief town of Gambia. Children at the age of 6 enter primary school which lasts 6 years. Secondary education leads to the West African School Certificate after 5-year course, and to the General Certificate of Education (A Level) after further 2-year course. Facilities of teacher training, technical education and general secondary education exist in the Colony area, and that is why students from the Provinces have to travel to the Colony area to profit by these facilities. Higher education has to be taken abroad or in other African countries.

Pop. (1967 est.) 343,000. Edu. (1967): Primary, schools 94; pupils 15,386, teachers 460; Secondary, schools 16, pupils 5,178, teachers 145.

GERMAN DEMOCRATIC REPUBLIC

The constitution of 1949 guarantees free general, polytechnical and higher education. Ministry of Education is responsible for framing educational policy and implementing it. Public education in schools is the responsibility of the 15 regions of the Republic. The regions administer these institutions with close cooperation of local authorities and parents' councils according to the laws promulgated by the Republic to ensure uniform basic provisions for education. In 1959, under the Law on the Socialist Development of Education, the elementary and secondary schools were replaced by the 10-year general polytechnical secondary school (*10-Klassige allgemeinbildende polytechnische Oberschule*).

Nursery schools provide education to children between 3 and 6 years of age. These are municipal or factory-owned establishments. Compulsory schooling begins at the age of 6 in the 10-year general polytechnical secondary school, and the compulsion covers a period of 10 years.

Those who do not want to continue education beyond the period of compulsion, transfer to a

2-year course in a vocational training school after completing the 8th grade of the 10-year school. Those intended for academic studies also transfer, after the 8th grade, to a 4-year upper secondary school (*Erweiterte Oberschule*) having 9th to 12th classes which lead to Secondary School Leaving Certificate (*Abitur*). After completing the course in upper secondary school one can take up a one-year vocational training course followed by the award of skilled worker's certificate. In 1962, full vocational education was introduced. After the 10-year school the pupil may either enter the 3-year vocational secondary school comprising practical training and general education and leading to the *Abitur* examination, or go to the general vocational school providing 2 or 3-year courses in various fields.

Admissions to higher educational institutions are controlled according to vacancies, and selections are made on the basis of aptitude tests. The *Abitur* is a pre-requisite. The academic year is divided into 2 semesters. The first degree or diploma is awarded after 4 or 5 years' course which generally consists of part-time practical work, as vocational and industrial training is an essential part of any course of study.

Pop. (1967 est.) 17,090,000. Edu. (1967): General polytechnic schools 7,484, enrolment 2,239,204; High schools 305, enrolment 100,738; Vocational schools 1,172, enrolment 468,684; Technical schools 188, enrolment 123,300; Institutions of higher education 44, enrolment 106,534.

GERMANY, FEDERAL REPUBLIC OF

The Federal Republic of Germany consists of eleven States known as *Länder*. The Basic Law of the Federal Republic dated 8 and 24 May 1949 declares that the whole school system is under the supervision of the *Länder*, i.e., all States are autonomous with regard to education. The Basic Law, however, provides concurrent legislative powers to the Federation for the promotion of scientific research. There is no Federal Ministry of Education, but in each individual *Land* or State the Minister of Education is responsible for the State educational system. In order to ensure co-ordination of educational and cultural policy the ministers have established a Permanent Conference of the Ministers of Education and Cultural Affairs. Even then, the educational system differs from *Land* to *Land* and is influenced by the religion, politics and economic status of the people of each State. The administration of education is

carried out on three levels, viz., *Land*, district and county, and the communities share a certain responsibility in the administration of schools. In 1966, the German Council of Education consisting of an Education Commission and a Government Commission was set up which represented both the Federal Government and the *Länder*. The tasks of the Education Commission are to draw up plans for the needs and development of German education, to make recommendations for the structure of education and to submit proposals for a long-term plan covering the various levels of education. In several *Länder*, the minimum age for compulsory schooling which was 6 years, is now 6 years and one month; and the compulsory attendance continues until 14 or 15. The education system begins with an eight or nine-year primary school (*Volksschule*). In some *Länder*, a 10th primary class is introduced, as an experimental measure, in accordance with the prevailing trend to extend schooling beyond the new 9th class. As a long-standing tradition in certain *Länder*, the primary schools are denominational (Protestant or Catholic) and the teachers are, as a matter of principle, of the same denomination as their pupils. New regulations have come into force in many places for establishing primary schools on a Christian inter-denominational basis. All children have to spend the first four years of their schooling (six-years in the three City States of Berlin, Bremen and Hamburg) at a primary school. This is known as the basic or junior school (*Grundschule*). Only then, and after taking an entrance examination, they may go on either to an 'intermediate school' (*Mittelschule* or *Realschule*), or to a secondary school (*Gymnasium*). The intermediate school usually comprises 6 classes (5th class to 10th class) and prepares for medium-grade posts in offices or firms, or, after the vocational training has been completed, to the advanced professional schools. The study of one foreign language is compulsory. The pupils may also continue in the primary school beyond the 4th year until the age of 14 or 15 and then may go to a part time or full time vocational school until the age of 18.

The secondary school known as *Gymnasium* is like a high school or grammar school. It comprises nine-year full general secondary classes (5th class to 13th class) leading to a school-leaving examination, called the *Abitur* or the *Reifeprüfung*, which opens the way to a university. By the time the pupil takes the examination he is about 19 or 20 years of age. There are three types of *Gymnasium*. At the

first, the classical languages are taught; at the second, modern languages with emphasis on English, French, Latin and sometimes Russian; and at the third, the accent is on mathematics and science. The first language studied at the first of these types is usually Latin; at the other two it is usually English. The second language usually starts in the 3rd year of the school, and the third language in the 4th year. The *Gymnasium* school leaving certificate is a prerequisite not only for entry to a university but also for embarking on any one of a great number of careers. Bremen, Hamburg and West Berlin have established comprehensive system of schools which may be attended by pupils throughout their school life, without the need for changing from one school system to the other. The intermediate schools and secondary schools are almost exclusively non-denominational. There is no charge of fees at a primary or a vocational school. Exemption from the payment of tuition fees in other schools has also been achieved in some of the *Länder*. The purpose of the advanced vocational schools is to complete the vocational training on a voluntary basis.

The Republic has 21 universities and nine technical colleges. There are also 5 other institutions with university status. *Länder* are responsible for university legislation and they have to meet the whole of the universities' requirements, both material and staffing. The universities and colleges are characterized by self-government with a *Rektor* being the Head, and are independent of the *Land* so far as their internal structure, curricula and research activities are concerned. The universities are divided into faculties, which are further divided into departments headed by elected professors. In most cases prerequisite for entrance is the school leaving certificate of the *Gymnasium* after 13 years of total schooling, except for certain disciplines like medicine, technology and some natural sciences, practical experience is required. The course of studies, leading to the 'State examination' for the award of degree varies according to the subjects: in arts 8 semesters (4 years), in natural sciences 8-10 semesters (4-5 years), in medicine 11 semesters (5½ years), and in technical universities 8 semesters (4 years). It is customary for the students to study at more than one university as there is freedom of movement between universities. State Examination degree does not always entitle entry into a profession.

At all schools the aim is to inculcate independent thought and responsible action to develop an

individual personality, to share public responsibility, to respect the conviction of other people, to love one's people and country, to value peace and to encourage cooperation among all nations. In February 1960, the *Lander* Ministers of Culture adopted a resolution on the teaching of recent history that further education in political matters should be given. The period 1933 to 1945 is handled with great forcefulness so as to ingrain the values of freedom and democracy at an early age.

The passing of *Abitur* is usually a prerequisite for the training of teachers for the primary schools and vocational schools. The course lasts 3 years. For the teachers at the commercial and secondary schools, the passing of the State examination, usually following 4 years of study at university, is essential. The *Lander* differ in their views whether or not the training of teachers should depend on the denomination to which they belong.

The magnificent provision of technical education is a salient feature of the Republic. Day-release opportunities are available for every school-leaver to continue his studies. There are three distinct types of institutions: the part-time vocational school (*Berufsschule*), the full-time vocational school (*Berufsfachschule*), and the more advanced vocational school (*Fachschule*). The part-time vocational school provides specialized training, as in household duties, in stage-acting or for violin makers, or assistants in medical technology. Medical graduates have to work for 2 years before private practice is allowed. Teachers of secondary schools need 2 years' practical training before they pass a second 'pedagogic' examination.

Pop. (1967 est.) 57,699,000. *Edu.* (1966): Enrolment—Primary 5,684,042; Special 198,833; Intermediate 622,134; Secondary (general) 1,049,540; Vocational, part-time 1,747,444, extension 56,880, full-time 176,095, advanced 150,677; Colleges of engineering 61,761; Teacher training colleges 59,416. Public expenditure on education (including West Berlin) (1965) 15,330 million Deutsche marks; 4.5% of national income.

GHANA

Ghana is a republic which acquired its independence in 1960. The educational policy is mainly derived from two Acts: the Accelerated Development Plan of 1957, and the Education Act of 1961, which made primary and middle education compulsory and abolished the payment of tuition fees. In 1963, the

Government undertook to supply textbooks free to all primary and middle schools.

Formal education starts at the age of 6 when the child enters elementary school and continues for the next six years, followed by four years in Middle School. The medium of instruction at the beginning of the primary courses is the vernacular. Oral English is introduced during the first year and later becomes a regular subject. Through a competitive Common Entrance Examination, pupils are selected for admission into secondary schools, where they may spend another five years to sit for the General Certificate of Education (Ordinary Level); and a further two years for the Advanced Level Certificate which qualifies the pupils for admission into any of the universities. Opportunities for a wide range of commercial, technical and vocational courses also exist after the primary or secondary education. There are 83 Teacher Training Colleges in addition to two specialist colleges and the University College of Science Education where the emphasis is in the training of graduate science teachers. There are three universities.

The Ministry of Education is responsible for all education. The Minister is advised by the Central Advisory Committee on Education and by the District Education Committees. All public secondary schools are inspected by officers of the General Education Division of the Ministry.

Pop. (1968 est.) 8,376,000. *Edu.* (1967-68): Primary and middle, pupils 1,402,202, teachers 48,613; Secondary, pupils 43,889, teachers 2,619; Technical, pupils 3,105, teachers 293; Teacher training, pupils 16,768, teachers 1,195; Higher (including 2 universities), students 4,878. Educational expenditure (1967-68) NC 74,822,000; 24.6% of total public expenditure.

GREECE

The constitution (1952) states that elementary education is compulsory for all and is offered free by the State, and that the number of compulsory school years shall be defined by law but shall not be less than six years. It declares that the aim of teaching in schools shall be to provide a moral and intellectual education and to develop the national consciousness of the pupils in accordance with the ideological directives of Greco-Christian civilization.

Pre-primary education exists for children aged between 4 and 6. Education is compulsory and free between the ages of 6 and 15 years. There is only one type of primary school

consisting of six grades. Pupils, after completing the primary school course, can take an entrance examination for admission in a general secondary school (*gymnasion*), a commercial secondary school (*emporiki scholi*), or a technical secondary school (*messi techniki scholi*). Students who work during the day may take evening classes. The general secondary school covers six-year course. It has two types: *gymnasion* which emphasizes classical Greek and Latin studies and *Lukeion* which emphasizes sciences. There are separate secondary schools for boys and girls. At the conclusion of six years of studies, the pupils have to sit for an admission examination for entry into a university or an institution of higher education. Teacher training is given in colleges of post-secondary level and covers a two-year course.

All educational institutions are under the control of the Ministry of Education which consists of three directorates-general (religion, vocational education and general education) and a few other directorates (school buildings, letters and fine arts, and higher education). The Ministry is assisted by a Higher Council for Education. For primary education, the country is divided into 150 districts, each directed by a primary inspector. For secondary education, the country is divided into 24 districts, each directed by an inspector-general for secondary schools.

Pop. (1967 est.) 8,716,000. *Edu.* (1967-68): Primary, pupils 910,090, teachers 27,847; Secondary (general), pupils 363,257, teachers 10,789; Teacher training, pupils 5,142; Five universities. Budget of the Ministry of Education and Religion (1967) Dr. 4,899 million; 13.4% of State budget; 2.7% of national income.

GUATEMALA

The constitution (1956) and the Organic Law of Education (1956) provide the legal bases for the educational system. A minimum course of general education shall be compulsory, and when imparted in official schools shall be free. The State shall maintain and increase, as far as possible, establishments of secondary education, institutions of technical, industrial, agricultural and commercial education, and specialized institutions of culture.

Pre-primary institutions like nurseries and kindergartens are maintained by the Ministries of Labour, of Public Health and Social Welfare and of Education; and the education is free. Primary education is also free, and compulsory in urban areas. It comprises a five-year programme.

The secondary school has a five-year course, divided into the three-year pre-vocational cycle and the two-year diversified cycle. A *baccalaureat* degree at the conclusion of a secondary school enables the students to enter the university. The teachers of a primary school require two years of training beyond the pre-vocational cycle. Commercial, vocational, technical, agricultural, fine arts and nursing education is available in specialized institutions with courses varying from 2 to 6 years. The two public universities, including the University of San Carlos, offer programmes of varying length.

Education is centralized. The Minister of Education is responsible for the final control, administration and supervision of all official primary and secondary schools. He is advised by a Technical Council for National Education. Supervision is carried out by inspectors appointed by the ministers, one inspector for each of the provinces.

Pop. (1967 est.) 4,717,000. *Edu.* (1967): Primary, pupils 474,919, teachers 13,088; Intermediate, pupils 60,340, teachers 4,919; Two national universities and two private universities. *Edu. budget* (1968) 24,935,851 quetzals; 14% of State budget.

GUINEA

Guinea was a part of French West Africa before becoming an independent State in 1958. The Constitutional Law (1958) recognizes the right of every citizen of the Republic of Guinea to education.

Kindergartens, nursery schools, and infant schools, where available, are attached to primary schools. Education, in principle, is compulsory for children from 7 to 15 years of age. Education at all levels is free. The medium of instruction is French. Primary education is intended for children between 7 and 13 years of age, and is divided into two cycles of 3 years each. Secondary education covers a 6-year programme. It comprises two cycles of 3 years each; the first is known as the 'orientation' cycle, and the second as 'specialization' cycle. Types of school at the secondary level are: junior secondary school which provides only the first 3-year cycle leading to first-cycle certificate; full general secondary school comprising both the cycles and leading to *baccalaureat*; full technical secondary school, vocational school and primary teacher training institute which offer only the second cycle of general education.

All educational establishments are under the control and administration of the Ministry of National Education. All educational questions

of importance are submitted to the Higher Council of National Education. The secondary and technical school inspectors are chosen from among the teachers and they continue to teach besides carrying out their assignment of supervision.

Pop. (1967 est.) 3,702,000. *Edu.* (1965-66): Primary, pupils 164,119, teachers 3,990; Secondary (general), pupils 16,698, teachers 567.

GUYANA

Guyana is a sovereign State within the British Commonwealth. It became independent in 1966 and adopted its own constitution in the same year. The responsibility for primary, secondary, vocational, technical and higher education rests with the Ministry of Education. Agricultural education falls under the Ministry of Agriculture and Natural Resources. Education is compulsory from 6 to 14 years of age and is free between 5 and 16. Primary education lasts

8 years and children have the option of attendance up to the age of 16 years and 6 months. Secondary education covers a course of 7 years for children between the ages 12 and 19. Vocational education, technical education and teacher training each lasts 2 years. Earlier, there were more private schools than government schools. The diminishing role of the churches and the increasing role of the State are reflected in the increasing number of government schools. Higher education is available in technical schools, domestic science and handcraft centres, teacher training and technical institutes, and in the University of Georgetown.

Pop. (1968 est.) 681,000. *Edu.* (1966-67): Primary, pupils 167,918, teachers 5,176; Secondary (general), pupils 17,734, teachers 727; Technical and vocational, pupils 1,552, teachers 36; Higher, pupils about 600, teachers about 60. *Edu. budget* (1967-68) G\$ 20,526,343; 14.5% of general State expenditure.

H

HAITI

The constitution (1955) lays down the following principles governing education: Primary education shall be compulsory; public education shall be free; freedom of choice in education shall be exercised under the control and supervision of the State, which shall concern itself with the moral and civic training of the youth; vocational and technical education shall be made available to all.

Pre-primary education is available for children between 3 and 6 years of age chiefly in private institutions. School attendance is compulsory for ages 7 to 14. The course of a primary school lasting 6 years is divided into 3 stages, each stage of 2 years: preparatory, elementary and intermediate. Primary schools are mainly of 3 types: urban primary school; rural primary school offering a course with a practical bias and including agriculture; pre-vocational school intended as a re-education centre for children of indigent parents. Secondary education lasts 7 years and consists of a lower cycle (3 years) offering common courses, and an upper cycle (4 years) offering courses diversified into Latin-Greek, Latin-Science, and science-modern languages groups. In the *lycees* (State general secondary schools) and *colleges* (private general secondary schools), the numbering of

the classes follows the Haitian pattern, beginning at the 12th class (the first grade in the primary) and going up to the first class (the 12th grade) which is followed by a terminal class. Admission to Teacher Training College (3 years) can be had after completing the first cycle of secondary education and admission to Higher Teacher Training College (4 years) after completing the second cycle of secondary education.

The Minister of National Education is responsible for urban primary, vocational, secondary and higher education, while the Minister of Agriculture is responsible for rural primary education.

Pop. (1967 est.) 4,581,000. *Edu.* (1965-66): Primary, schools 1,883, pupils 283,799; Secondary, schools 75, pupils 20,128; One university, students 1,822. Public expenditure on education (1964) 26 million gourdes.

HONDURAS

The provisions of the constitution (1957) include the following: Primary education shall be compulsory; public education shall be secular and provided free of charge; moral instruction, as an independent subject, shall be compulsory in all primary and secondary schools, both public and private.

Public or private nursery schools or kindergartens intended for children from 4 to 7 years of age are run either independently or as annexes to primary schools. School attendance is compulsory for all children between 7 and 15 years of age, residing within 3 kilometres from a school. Urban primary schools provide a six-year course, while rural primary schools provide a three-year course. For the first four grades, there is a two-shift system, each of the two groups of pupils studying for four hours. There are four types of education, ranging from 3 to 5 years at the secondary level: general secondary education, vocational training, teacher training, and art education. The general secondary school course lasts 5 years.

Minister of Public Education is responsible for the organization, direction and provision of education. He is advised by the Central Consultative Council. The Directorate and Inspectorate General for Primary Education looks after pre-primary and primary schools, while the Directorate and Inspectorate General of Secondary Education looks after all schools at secondary level including teacher training institutions and vocational schools.

Pop. (1968 est.) 2,445,440. *Edu.* (1967): Pre-primary and primary, schools 4,173, pupils 345,002, teachers 11,228; Secondary, schools 106, pupils 27,432, teachers 2,296; One university at Tegelgalpa, students 1,600. Expenditure on education by the Federal Government (1964) 22 million lempiras; 2.7% of national income.

HUNGARY

The State ensures the right to education; it implements this right by extending universal education, by providing free compulsory education in general schools, by providing secondary and higher education and education for adult workers, and by giving financial assistance to those receiving schooling of any kind. All schools are State schools except a few providing purely religious education.

Day nurseries care for children between one month and three years of age. The pre-primary school (*Ovoda*) is intended for children from 3 to 6 years of age. Schooling is compulsory from the age of 6 to 16 years. The eight-grade general school (*Általános iskola*) forms the primary foundation of the education system. It is free and compulsory and gives the same type of education to every child. It gives children a communist upbringing and helps them to learn

the rudiments of production, to use simple tools and to acquire the elements of a polytechnical background. Secondary education lasts four years at the grammar school (*gymnasium*), vocational secondary school and technical secondary school, three years at the apprentice training school, and two years at the extension course. After successful completion of the course at the *gymnasium*, consisting of two sections (classical and modern), a pupil may enter a university, or take up productive work. The purpose of technical schools is to provide a secondary training in the various branches of industry, agriculture, trade and transport and also to give the pupils a general culture which will help them to enter a university should they so desire. The school system is now being reformed by transforming the technical schools into technical colleges, and in their stead a new type of vocational secondary schools are being established with the purpose of building the educated technicians of the future.

All primary schools and most secondary and higher educational establishments are controlled by the Ministry of Cultural Affairs. Within the framework of the new organization which came into force on 1 January, 1968, the power and duties of the county, city and borough councils (local authorities) have considerably increased in every field including educational administration. The decentralization of authorities enables the local educational administrative organ of the Executive Committee of each council to deal with operative tasks with greater independence and responsibility, under the guidance and general regulations of the Ministry of Cultural Affairs and with a direct knowledge of local circumstances, needs and potentialities. The National Education Council set up as an advisory body of the Ministry of Cultural Affairs functions as an important organ of school administration. School inspection is ensured partly by independent educators, who have no teaching assignments, and partly by educators and experts who devote half of their time to teaching their special subjects.

Pop. (1967 census) 10,197,000. *Edu.* (1967-68): Primary, pupils 1,331,079, teachers 62,340; Special, pupils 25,895, teachers 2,229; Secondary (general), pupils 129,110, teachers 8,170; Higher (including 14 universities), students in day sections 52,407 and in evening and correspondence sections 31,531. *Edu. budget* (1968) 8,778 million forints; 6.3% of State budget; 4.2% of gross national revenue.

I

ICELAND

The constitution provides that if parents themselves cannot afford to educate their children, or if the children are orphans and poor, then these children shall be supported and educated at public expense. The primary and lower secondary schools are jointly financed by the State and municipalities. The higher secondary schools and the university are entirely financed by the State. Education is free at all levels, and is compulsory between the ages of 7 and 15.

The primary schools last 6 years for all children aged 7 to 13. The secondary education is divided into two cycles—the 3-year lower secondary cycle, and the 4-year upper secondary cycle. The lower cycle has two and three-year courses. Compulsory education is completed after a two-year course. The successful completion of the 3-year lower cycle leads entry into a 4-year upper general secondary (grammar) school or a 4-year teacher training school. Those who do not go to these schools may choose a vocational school. The 4-year grammar school, after the first year, divides itself into two streams—arts and science, and leads to upper secondary certificate which grants admission to the university. The 4-year teacher training school leads to teacher's certificate for primary and youth schools, or a further one year's study and passing an examination grants admission to the university. The University of Iceland in Reykjavik is the only university. The Ministry of Education is responsible for education and is assisted by the Director of Public Education. For educational administration Iceland is divided into educational districts and school districts, each having a board of education and a school board.

Pop. (1967 est.) 199,920. Edu. (1967): Primary, schools 210, pupils 27,500; Secondary (general-lower), schools 120, pupils 12,800; Secondary (general-upper), schools 5, pupils 1,950; Teacher training, schools 3, pupils 670; Technical, schools 8, pupils 2,730; University, students 1,200. Public expenditure on education (1964) 561 million kronas; 4.2% of national income.

INDIA

Constitutional Bases of Education

The Constitution of India, Preamble: The preamble has a great bearing on educational policies and programmes. It reads: "WE, THE PEOPLE OF INDIA, having solemnly resolved to constitute India into a SOVEREIGN DEMOCRATIC REPUBLIC and to secure to all its citizens: JUSTICE, social, economic and political; LIBERTY of thought, expression, belief, faith and worship; EQUALITY of status and of opportunity; and to promote among them all FRATERNITY assuring the dignity of the individual and the unity of the Nation; IN OUR CONSTITUENT ASSEMBLY this twenty-sixth day of November, 1949, DO HEREBY ADOPT, ENACT AND GIVE TO OURSELVES THIS CONSTITUTION."

Education a State subject: Education was made a State subject according to entry 11 of 'List II—State List' of the Seventh Schedule to the Constitution. The entry 11 reads: "Education including universities, subject to the provision of entries 63, 64, 65 and 66 of List I and entry 25 of List III."

Higher Education and Institutions for Research, Scientific or Technical Education: The entry 63 of List I reads: "The institution known at the commencement of this Constitution as the Banaras Hindu University, the Aligarh Muslim University and the Delhi University, and any other institution declared by Parliament by law to be an institution of national importance." The entry 64 of List I reads: "Institutions for scientific or technical education financed by the Government of India wholly or in part and declared by Parliament by law to be institutions of national importance." The entry 65 of List I reads: "Union agencies and institutions for—(a) professional, vocational or technical training, including the training of police officers; or (b) the promotion of special studies or research; or (c) scientific or technical assistance in the investigation or detection of crime." The entry 66 of List I reads: "Co-ordination and determination of standards in institutions for higher education or research and scientific and technical institutions."

Economic and Social Planning: The entry 20 of 'List III—Concurrent List' relates to economic and social planning which is a concurrent responsibility of the Centre and the States. The entry 20 reads: "Economic and social planning." The Government of India and the State

Governments have to work jointly in preparing and implementing national plans for education, as educational planning is an integral part of economic and social planning.

Vocational and Technical Training of Labour : Constitution of India, entry 25 of 'List III—Concurrent List' relates to education for which Parliament and the Legislature of any State (subject to certain provisions), have power to make laws. The entry 25 reads : "Vocational and Technical Training of Labour."

Free and Compulsory Education : Constitution of India, Art. 45 relates to 'Provision for free and compulsory education for children' and it reads : "The State shall endeavour to provide, within a period of 10 years from the commencement of this constitution, for free and compulsory education for all children until they complete the age of 14 years." This is one of the directive principles of State policy 'fundamental in the governance of the country and it shall be the duty of the State to apply these principles in making laws.'

Religious Education and Education of the Minorities : Constitution of India, Art. 15(1), (3) (4) relates to 'Prohibition of discrimination on grounds of religion, race, caste, sex or place of birth ; and it reads : "(1) The State shall not discriminate against any citizen on grounds only of religion, race, caste, sex, place of birth or any of them... (3) Nothing in this article shall prevent the State from making any special provision for women and children. (4) Nothing in this article or in clause (2) of article 29 shall prevent the State from making any special provision for the advancement of any socially and educationally backward classes of citizens or for the Scheduled Castes and the Scheduled Tribes."

Constitution of India, Art. 26 : The Article relates to 'Freedom to manage religious affairs'. It reads : "Subject to public order, morality and health, every religious denomination or any section thereof shall have the right (a) to establish and maintain institutions for religious and charitable purposes ; (b) to manage its own affairs in matter of religion; (c) to own and acquire movable and immovable property; and (d) to administer such property in accordance with law."

Constitution of India, Art. 28 : The Article relates to 'Freedom as to attendance at religious instruction or religious worship in certain educational institutions'. It reads : (1) "No religious instruction shall be provided in any educational institution wholly maintained out of State funds. (2) Nothing in clause (1) shall apply to an educational institution which is

administered by the State but has been established under any endowment or trust which requires that religious instruction shall be imparted in such institution. (3) No person attending any educational institution recognised by the State or receiving aid out of State Funds shall be required to take part in any religious instruction that may be imparted in such institution or to attend any religious worship that may be conducted in such institution or in any premises attached thereto unless such person or, if such person is a minor, his guardian has given his consent thereto."

Constitution of India, Art. 29 : The Article relates to 'Protection of interests of minorities'. It reads : "(1) Any section of the citizens residing in the territory of India or any part thereof having a distinct language, script or culture of its own shall have the right to conserve the same. (2) No citizen shall be denied admission into any educational institution maintained by the State or receiving aid out of State funds on grounds only of religion, race, caste, language or any of them."

Constitution of India, Art. 30 : The Article relates to 'Rights of minorities to establish and administer educational institutions'. It reads : "(1) All minorities, whether based on religion or language shall have the right to establish and administer educational institutions of their choice. (2) The State shall not, in granting aid to educational institutions, discriminate against any educational institution on the ground that it is under the management of a minority, whether based on religion or language."

Constitution of India, Art. 46 : The Article relates to 'Promotion of educational and economic interests of Scheduled Castes, Scheduled Tribes and other weaker sections'. It reads : "The State shall promote with special care the educational and economic interests of the weaker sections of the people, and, in particular, of the Scheduled Castes and the Scheduled Tribes, and shall protect them from social injustice and all forms of exploitation." It is one of the directive principles of State policy.

Constitution of India, Art. 337 : The Article relates to 'Special provision with respect to educational grants for the benefit of Anglo-Indian Community'. It reads : "During the first three financial years after the commencement of this Constitution, the same grants, if any, shall be made by the Union and by each State for the benefit of the Anglo-Indian community in respect of education as were made in the financial year ending on the 31st day of March, 1948. During every

succeeding period of three years, the grants may be less by 10% than those for the immediately preceding period of three years; provided that at the end of 10 years from the commencement of this Constitution, such grants to the extent to which they are a special concession to the Anglo-Indian community, shall cease; provided further that no educational institution shall be entitled to receive any grant under this Article unless at least 40% of the annual admissions therein are made available to members of communities other than the Anglo-Indian Community."

Constitution of India, Art. 350-A: The Article relates to 'Facilities for instruction in mother tongue at Primary stage'. It reads: "It shall be the endeavour of every State and of every local authority within the State to provide adequate facilities for instruction in the mother-tongue at the primary stage of education to children belonging to linguistic minority groups; and the President may issue such directions to any State as he considers necessary or proper for securing the provision of such facilities."

Constitution of India, Art. 351: The Article relates to 'Directive for development of the Hindi language'. It reads: "It shall be the duty of the Union to promote the spread of the Hindi language, to develop it so that it may serve as a medium of expression or all the elements of the composite culture of India and to secure its enrichment by assimilating without interfering with its genius, the forms, style and expressions, used in Hindustani and in the other languages of India specified in the Eighth Schedule, and by drawing, wherever necessary and desirable for its vocabulary, primarily on Sanskrit and secondarily on other languages."

Education under the Union Government

Higher Education: At the University stage, the Ministry of Education and Youth Services is mainly concerned with (a) the Five Central Universities of Aligarh, Banaras, Delhi, Visva-Bharati and Jawaharlal Nehru, (b) the institutions, 'deemed to be Universities' under Section 3 of the University Grants Commission Act, (c) Co-ordination and maintenance of standards of higher education through the University Grants Commission (U.G.C.), (d) the Rural Institutes of Higher Education (e) a few other programmes of higher education.

Education in the Union Territories: The Ministry of Education and Youth Services, Government of India, has a special responsibility for education in the Union Territories. The Territories of Goa, Daman and Diu, Himachal

Pradesh, Manipur, Pondicherry and Tripura have their own legislatures and exercise powers specified in the Government of Union Territories Act 1963. Delhi has a Metropolitan Council which functions under Delhi Administration Act, 1966. Other Union Territories have no legislatures.

Cultural and other Programmes: The Ministry of Education is directly in charge of the following: (1) Cultural programmes (including the Archaeological Survey of India), games and sports at the National level. (2) Council of Scientific and Industrial Research in which the Union Education Minister is the *ex-officio* Vice-President. (3) Four Major Surveys viz. the Survey of India, the Anthropological Survey of India, the Botanical Survey of India, and the Zoological Survey of India. (4) It is the co-ordinating agency for Unesco and operates the Indian National Commission for Cooperation with Unesco.

Assistance to Voluntary Organisations: The Ministry of Education provides assistance to voluntary educational organisations working in the field of school education. Grants are sanctioned on the recommendations of the State Governments. The assistance is given for specific objects such as: (1) Projects of an experimental or educationally significant nature; (2) Laboratories, libraries and science equipment; (3) Production of educational literature including educational journals; and (4) Holding of seminars, exhibitions and/or conferences of national importance on school education. Three schemes for assistance are: (a) Assistance to voluntary educational organisations working in the field of pre-primary, primary, secondary education as well as teachers' training schools. (b) Assistance to voluntary educational organisations in the field of women's education. (c) Assistance to good residential schools in the country.

Cultural Relations with Foreign Countries: The Ministry of Education draws up each year a cultural activities programme designed to promote mutual understanding and goodwill and to foster closer relations with foreign countries in consultation with the Ministry of External Affairs and the Indian Missions abroad. The programme includes exchange of delegations, exhibitions, publications, etc., participation in international congresses and conferences, bilateral cultural agreements, deputation of teachers for service abroad etc. At a non-governmental level, the Indian Council of Cultural Relations, an autonomous organisation, entirely financed by the Ministry, implements a significant part of these activities.

Budget: As against the total budget estimates of Rs. 135.60 crore for the Ministry as a

whole (including the provisions made for the Ministry in the Demands operated by the Ministries of Home Affairs and Finance) for the year 1969-70 (both Plan and non-Plan) the revised estimates for 1969-70 and the budget estimates for 1970-71 amount to Rs. 125.28 crore (provisional) and Rs. 147.08 crore (provisional) respectively.

School Education : School education is the responsibility of State Governments. The Union Government undertakes only those programmes in this field which broadly relate to a few important aspects which have a national significance.

Free Education : Primary education (classes I-VII or I-VIII as the case may be) is free in all States except Assam (boys only in classes VI-VIII), Bihar (boys only in classes V-VIII), U.P. (for boys only in classes VII and VIII) and West Bengal (in some urban areas in classes I-V and generally in classes VI-VIII). The entire school education is free in Tamil Nadu, Andhra Pradesh and Mysore. All education is free in Jammu and Kashmir and Nagaland.

Science Education : A four-phased programme has been chalked out for the improvement of quality of science education in schools. The programme consists of : (i) Preparation of syllabi, textbooks and other instructional materials in the National Council of Educational Research and Training in collaboration with the State Institutes of Education, the State Institutes of Science, the directorates of education, selected university departments and boards of secondary education. (ii) Short orientation courses for the State Institutes of Science, State Institutes of Education and teacher training colleges. (iii) Supply of equipment to various institutions, teacher training schools and selected lower primary, higher primary and secondary schools. (iv) Introduction of new courses and new materials at all stages of school education.

Universities : The earliest universities to be established in India were Bombay, Calcutta and Madras about a century ago. In 1902, the Indian Universities Commission was appointed and the Indian Universities Act was passed in 1904. The Resolution of Educational Policy of the Government in 1913 accepted the need for establishing more universities. As a result of this six new universities came into existence between 1913 and 1921. After 1921, education became a transferred subject and the development of universities was much faster. Nine more universities were established during the next 26 years. After independence, educational needs accelerated and today there are over 80 universities in India.

Textbooks : A National Board of School Textbooks has been established with a view to co-ordinating and guiding the activities of national and State organisations. Almost all the State Governments have nationalised the production of textbooks in varying degrees. Textbooks printing presses gifted by West Germany are being established at Mysore, Bhubaneswar and Chandigarh.

The Five Year Plans

The Five Year Plans on Education form a part of the Five Year National General Plans. Each Plan is drawn up for a period of 5 years by various agencies at district, as well as State level, and is finally co-ordinated by the Ministry of Education before it is modified and approved by the Planning Commission. The Planning Commission was founded in 1950 followed by the First, Second and Third Plans covering the periods 1951-56, 1956-61 and 1961-66 respectively. The Fourth Five Year Plan for the period 1969-74 succeeds the three annual Plans for 1966-67, 1967-68 and 1968-69. It is gradually being recognised that education is not just a consumption or welfare activity something that can be postponed in preference to investment on irrigation, power, or industries. It undoubtedly plays an important role in the economic development of a country.

Financial Provision for Education and Training in the Plans

(Rs. in crores)			
	1st Plan 1951-56	2nd Plan 1956-61	3rd Plan 1961-66
1. General Education (including Cultural Programmes)	133	208	418
2. Technical Education	20	48	142
3. Vocational Training	—	13	49
4. Medical Education	22	36	57
5. Agricultural Education	5	11	20
6. Other Ministries	22	41	79
(i) Total Education and Training	202	358	765
(ii) Total Plan Provision	1960	4600	7500
(iii) Percentage on Education	10.3	7.8	10.2

The First Five Year Plan (1951-52 to 1955-56) : The main emphasis was on : reorientation of the educational system and integration of its different stages ; expansion in various fields, especially in the Basic and social education ; improvements of the existing secondary and university education and the devising of a system

of higher education suited to the needs of the rural areas ; expansion of facilities for women's education ; training of teachers, especially women teachers and teachers for Basic schools ; improvement in the pay scales and service conditions of teachers ; and assistance to backward States and backward sections of the population. The total outlay on education was Rs. 153 crores distributed as under : elementary education Rs. 85 crores ; secondary education Rs. 20 crores ; university education Rs. 14 crores ; social education, physical education, cultural programmes, etc. Rs. 14 crores ; technical education Rs. 20 crores. The number of students in classes I to V increased from 191.5 lakhs (1950-51) to 251.7 lakhs (1955-56), in classes VI to VIII from 31.2 lakhs to 42.9 lakhs, in classes IX to XI from 12.6 lakhs to 19.8 lakhs and in university education from 3.1 lakhs to 5.5 lakhs. The proportion to children attending schools in the age-group 6-11 increased from 43.1% to 50%, in the age group 11-14 from 12.9%, to 15.9%, and in the age-group 14-17 from 5.6% to 7.9%. In technical education, the admission capacity for diplomas and degrees increased from 5,900 to 10,480 and from 4,120 to 5,890 respectively. The number of school teachers increased from 7.50 lakhs (including 57% trained) in 1950-51 to 10.29 lakhs (including 61% trained) in 1955-56.

The Second Five Year Plan (1956-57 to 1960-61): The main emphasis was on Basic education, expansion of elementary education, diversification of secondary education, improvement of standards of college and university education, extension of facilities for technical and vocational education, and the implementation of social education and cultural development programmes. The total outlay on education was Rs. 256 crores distributed as under : elementary education Rs. 87 crores ; secondary education Rs. 48 crores ; university education Rs. 45 crores ; social education, physical education, cultural programmes, etc. Rs. 28 crores ; technical education Rs. 48 crores. The number of students in classes I to V increased from 251.7 lakhs (1955-56) to 349.9 lakhs (1960-61), in classes VI to VIII from 42.9 lakhs to 67.1 lakhs, in classes IX to XI from 19.8 lakhs to 30.2 lakhs, and in university education from 5.5 lakhs to 7.4 lakhs. The proportion of children attending schools in the age-group 6-11 increased from 50% to 62.8%, in the age-group 11-14 from 15.9% to 22.5%, and in the age-group 14-17 from 7.9% to 11.1%. In technical education, the admission capacity for diplomas and degrees increased

from 10,480 to 25,000 and from 5,890 to 13,820 respectively. The number of school teachers increased from 10.29 lakhs (including 61% trained) in 1955-56 to 13.83 lakhs (including 65% trained) in 1960-61.

The Third Five Year Plan (1961-62 to 1965-66):

The main emphasis was on : Provision of facilities for the education of all children in the age-group 6-11 ; extension and improvement in teaching of science in secondary and university stages ; development of vocational and technical education at all levels ; expansion and improvement of facilities for the training of teachers for each stage of education ; increase in scholarships, freeships and other assistance ; special concentration on the education of girls ; orientation of all elementary schools to the Basic pattern ; re-organization of university education ; development of both skill and knowledge, a creative outlook, a feeling of national unity and an understanding of common interests and obligations, at all stages of education. The total outlay on education was Rs. 560 crores distributed as under : elementary education Rs. 209 crores ; secondary education Rs. 88 crores ; university education Rs. 82 crores ; social education, physical education, cultural education, etc. Rs. 39 crores ; technical education Rs. 142 crores. The number of students in classes I to V increased from 349.9 lakhs (1960-61) to 514.5 lakhs (1965-66), in classes VI to VIII from 67.1 lakhs to 105.4 lakhs, in classes IX to XI from 30.2 lakhs to 55.1 lakhs, and in university education from 7.4 lakhs to 12.3 lakhs. The proportion of children attending schools in the age-group 6-11 increased from 62.8% to 78.5%, in the age-group 11-14 from 22.5% to 30.9% and in the age-group 14-17 from 11.1% to 18%. In technical education the admission capacity for diplomas and degrees increased from 25,000 to 49,900 and from 13,820 to 24,700 respectively. The number of school teachers increased from 13.83 lakhs (including 65% trained) in 1960-61 to 20.47 lakhs (including 74% trained) in 1967-68.

Education Commission 1964-66

A Commission was appointed in 1964 by the Government of India under the chairmanship of Prof. D.S. Kothari to advise the Government on the national pattern of education and on the general principles and policies for the development of education at all stages and in all aspects. The report of the Commission is divided into three parts. The first part covers chapters I-VI and deals with general

educational reconstruction common to all stages and sectors of education ; the second part covers chapters VII to XVII and deals with different stages and sectors of education ; the third part covers two chapters XVIII and XIX and deals with educational planning, administration and finance. Among the important recommendations were (i) Introduction of work experience and social service as an integral part of education, (ii) Vocationalization of secondary education, (iii) Adoption of regional language as the media in higher education, and (iv) Compulsory teaching of mathematics and science during the first ten years of schooling. The complete title of the report is 'Report of the Education Commission 1964-66, Education and National Development'. It is sometimes referred to as 'The Kothari Commission'.

National Policy on Education

The National Policy on Education was announced by the Union Education Minister in July 1968. The policy was evolved after a broad consensus of opinion among vice-chancellors of Indian Universities, leading educationists, State Education Ministers and other representative interests. It is for the first time since Independence that a National Policy on Education has been published which provides an avowed outline of educational development in important fields. The National Policy on Education has laid stress in equalization of educational opportunity and provision of good educational facilities in rural and backward areas. The resolution recommends raising the investment in education from the present level of about 2.7 per cent to 6 per cent of the national income. It has recommended a uniform educational structure in all parts of the country, with the ultimate objective of having a 10-year schooling period up to the high school, a two-year higher secondary course and a three-year period for the degree course. The resolution accords a high place to science and mathematics.

Education in the States

Andhra Pradesh

Primary education covers classes I to V, upper primary VI to VII, high VIII to X, and higher secondary XI to XII. The minimum age of admission to class I is 5+ years. Mother tongue, i.e., Telugu for most of the students, is the medium of instruction. Instruction through other languages like Urdu, Tamil, Oriya, Kannada, Gujarati, Marathi and Hindi is allowed to those pupils whose mother tongue

is different from Telugu, the regional language. English is allowed to all pupils irrespective of their mother-tongue. Teaching of Hindi is compulsory in classes V to XII. Teaching of English is compulsory in classes III to XII. Number of working days including examination and co-curricular activities is 220.

Universal, free and compulsory primary education of the age-group 6-7 years was given effect from the academic year 1961-62. It was extended to the age-group 6-8 years in 1962-63. By the end of 1965-66 all the children of the age-group 6-11 years were brought into the ambit of the scheme. Education up to class X is free to all children ; for girls, it is free even up to class XII.

There are four universities in Andhra Pradesh—the Osmania University, Andhra University, Sri Venkateswara University and Andhra Pradesh Agricultural University. The Osmania University was the first university in India to introduce Urdu as the medium of instruction. In 1948, however, English replaced Urdu keeping pace with contemporary trends. Again it was the first university in the country to introduce the General Education Course as a compulsory subject at the graduate level in all its institutions. The University Grants Commission has selected the Department of Astronomy in Osmania University for advanced training and research in experimental astronomy and radio astronomy. There are now fifty-one colleges in the jurisdiction of the Osmania University, forty-three of the Andhra University and twenty-five of Sri Venkateswara University. Besides, there are 26 Oriental Colleges, 24 for men and 2 for women. There are also 24 evening colleges in the State. Of the ten teachers training colleges, eight are for men and two for women.

There were seven engineering colleges imparting degree courses at the end of the third Plan with an admission capacity for 1,755 students. The number of polytechnics stood at 22 but the seats were for 3,463 students. The Administrative Staff College of India was established in 1957. There are many scientific institutions devoted to research in the field of defence.

Pop. 42,425,000.

Assam

Primary education covers 5 years. The 'middle' stage of a high school lasts 3 years, 'middle' stage of a higher secondary school 4 years, 'high' 4 years (classes VII to X), and 'higher secondary' 5 years (classes VII to XI). Minimum

age of admission to class I is 5⁺ years. Mother tongue is generally the medium of instruction at all stages ; English at high school stage in schools for hill people and linguistic minorities. Assamese, Bengali, English and Hindi are the recognised media for higher secondary schools. Hindi is compulsory in normal, special and Basic training schools, but optional in classes IX and X. English is taught as a compulsory subject in classes IV to XI. Three compulsory public examinations are conducted (i) at the end of the primary stage, (ii) at the end of class X, and (iii) at the end of class XI. The number of working days including examinations and co-curricular activities are 226, 244 and 261 at the high, middle and primary stage respectively. Academic session begins on 1st January and ends on 31st December. Long vacations fall in June. Besides, there are Durga Puja short vacations. Education is compulsory for the age-group 6-11 years. Primary education is free in government schools.

There are : Universities 2 ; Arts and science colleges 94 ; Colleges for commerce 4 ; Degree and post-graduate training colleges 4 ; Higher secondary including multipurpose higher secondary schools 69 ; High schools including multipurpose high schools 119 ; Middle/senior basic schools 2,943, and primary/junior basic schools 23,763.

Pop. 15,203,000.

Bihar

Primary stage of education covers 5 years (classes I to V), middle 2 years (classes VI and VII), high 4 years (classes VIII to XI) and higher secondary 5 years (classes VIII, IX, X Special, X Special and XI Special). Minimum age of admission to class I is 6⁺ years. Mother tongue, i.e., Hindi for most of the students, is the medium of instruction up to the end of middle/senior basic stage, and Hindi thereafter. Minority languages are allowed as media of instruction in schools of linguistic minorities. Teaching of Hindi is compulsory in classes I to III in such schools where the medium of instruction is Hindi, and classes IV to XI in all schools. English is taught as a compulsory subject in classes VI to XI of high schools, and classes VIII to XI (special) of higher secondary schools. Two compulsory public examinations are held : (1) at the end of class XI of high school, and (2) at the end of class XI (Special) of higher secondary school. Number of working days during the year in primary, middle and high schools is 253, 242 and 220 respectively. Academic session commences

in January. One month's vacation is observed in June-July and 20-25 days' during Puja and X'mas. Education is compulsory for the age-group 6-11 years. Education is free in classes I to V for boys and I to VIII for girls.

There are : Universities 6 ; Arts and science colleges 161 ; Degree and post-graduate colleges for physical education 1 ; Degree and post-graduate teachers training colleges 7, Under-graduate teachers training colleges 96 ; Higher secondary schools 421 ; High schools 1,841 ; Middle/senior basic schools 7,308 ; Primary/junior basic schools 44,677 ; and schools for the handicapped 10.

Pop. 56,443,000.

Gujarat

Primary education stage covers 4 years (classes I to IV), upper primary 3 years (classes V to VII), and high 4 years (classes VIII to XI). Minimum age of admission to class I is 5⁺ years. Mother tongue is the medium of instruction at all stages of school education. In a few secondary schools it is English, Urdu, Sindhi, Hindi, Marathi, or Gujarati ; pupils are free to join such schools. Teaching of Hindi is compulsory in all classes of Hindi medium schools and in classes V to XI of non-Hindi medium schools. English is a compulsory subject in classes VIII to X of non-English medium schools. It is, however, optional in class XI of non-English medium schools. Public examination is compulsory at the end of high stage i.e. class XI. There are 237 working days at the primary stage and 241 at the secondary stage.

There are : Universities 6 ; Arts and science colleges 128 ; Colleges for commerce 22 ; Degree and post-graduate colleges for physical education 2 ; Under-graduate colleges for physical education 6 ; Degree and post-graduate colleges of education 6 ; High schools 1904 ; Post basic schools 62 ; Middle/senior basic schools 10,010 ; Primary/junior basic schools 23,110 ; Pre-primary schools 747 ; and schools for the handicapped 26.

Pop. 25,891,000.

Haryana

The number of institutions of all types has gone up considerably during the last three and a half years of its existence. The total number of institutions of all types was 5726 in 1965-66. The number came up to 5,856 in 1968-69. As against 38 colleges for general education in 1965-66, there were 52 colleges in 1968-69. The number of teachers training colleges increased

from 5 to 11 during 1968-69. The number of high and higher secondary schools increased from 547 during 1965-66 to 900 during 1968-69.

A State Institute of Education has been established at Karnal with a view to strengthening the professional growth of the educational workers. The Board of School Education was created in 1969.

Pop. 9,990,000.

Himachal Pradesh

Primary/junior basic stage lasts 5 years (classes I to V), middle/senior basic 3 years (classes VI to VIII), high 2 years (classes IX and X); and higher secondary 3 years (classes IX to XI). Minimum age of admission to class I is 5+ years. Hindi is the medium of instruction at the school stage. It is compulsory in classes I to VIII and optional in classes IX to XI. English is compulsory in classes IV to XI. Three public examinations are conducted (i) at the end of middle stage, (ii) at the end of high stage and (iii) at the end of class XI (Higher Secondary stage). Number of working days at the primary, middle and secondary stages are 200, 190, and 180 respectively. There are 2 patterns of school holidays. Summer closing (in warm regions): I term from 8th April to 31st August, II term from 1st Sept. to 24th Dec. and III term from 1st Jan. to 31st March. Winter closing (in cold regions): I term from March to August and II term from August to February. Compulsion is not in force. Education is free in classes I to VIII.

During the year 1969-70 there were : 13 Pre-primary schools ; 40 Pre-primary units ; 3,763 Lower primary schools ; 709 Higher primary schools ; 325 High schools ; 84 Higher secondary schools ; 14 Degree colleges ; 3 Colleges of education ; 1 Government College of arts ; 5 Sanskrit institutions ; 7 Basic training schools ; 3 Pre-vocational training centres ; 1 Regional Coaching Centre for sports ; 1 Vigyan Mandir, 3 Evening Colleges ; 1 Regional centre for post-graduate studies ; 2 Polytechnics ; 1 Medical college ; and 2 Agricultural colleges. A State Board of School Education was established during 1969-70, which will conduct examinations at the school level and work on the improvement of curriculum courses of study etc.

Pop. 3,527,000.

Janamu and Kashmir

Primary stage of education covers 5 years (classes I to V), middle 3 years (VI to VIII), high 2 years (IX to X), and higher secondary 3 years (classes IX to XI). The minimum age of

admission to class I is 6+ years. Simple Urdu, in Persian or Devnagari script is the medium of instruction at all stages. English is also the medium of instruction for some subjects like mathematics and science. Hindi is taught as an optional subject in classes I to XI. English is a compulsory subject in classes VI to XI of boys' schools and classes IX to XI of girls' schools. Girls can take it as an optional subject in classes VI to VIII. Number of working days in schools is 245. The academic session starts from 1st April. Education is free at all stages of education. Compulsion is not in force.

There are : University 1 ; Arts and science colleges 17 ; Colleges for commerce 1 ; Teacher-training degree colleges 2 ; Under-graduate teacher-training colleges 18 ; Higher secondary schools 54 ; High schools 489 ; Middle/senior basic schools 1,311. Primary/junior basic schools 6,562 ; Schools for handicapped 3.

Pop. 3,994,000.

Kerala

Lower primary/junior basic covers 4 years (standards I to IV), upper primary/senior basic 3 years (standards V to VIII), high/post-basic 3 years (standards VIII to X). The minimum age of admission to primary stage is 5+ years. Malayalam is the medium of instruction at all stages ; other languages like Tamil, Kannada and English are allowed to those pupils whose mother tongue is different from Malayalam, if there are sufficient number of pupils. Hindi is taught as a compulsory subject in standards V to X. English is compulsory in standards III to X. There is one compulsory public examination at the end of standard X. The number of working days in a school is 200. The academic session starts on 3rd June. Education is free in classes I to VIII in Government and aided schools. Compulsion is not in force.

There are : Universities 2 ; Arts and science colleges 116 ; Post-graduate teacher training colleges 19 ; Higher secondary schools 1,377 ; Post-basic schools 3 ; Middle/senior basic schools 2,540 ; Primary/junior basic schools 7,039 ; and schools for handicapped 7.

Pop. 20,813,000.

Madhya Pradesh

The duration of primary/junior basic stage is 4 years (classes I to IV), middle/senior basic 3 years (classes V to VIII), high school 3 years (classes VIII to X), and junior colleges 4 years (classes IX to XII). The minimum age for admission to class I of primary stage is 6+

years. Mother tongue, Hindi for most people is the medium of instruction. Instruction is also provided through Telugu, English, Bengali, Marathi, Gujarati, Punjabi, Malayalam, Oriya, Sindhi, and Urdu for those whose mother tongue is other than Hindi. Hindi is a compulsory subject in classes I to XI in schools where the medium of instruction is Hindi, and in classes III to X in schools where the medium of instruction is other than Hindi. Teaching of English is compulsory in classes VI to XI. Two compulsory public examinations are held at the end of class X and class XII. The number of working days during the year is 220. The academic session starts from first of July. Compulsion is not in force. Education is free for boys from classes I to VIII and for girls from classes I to XI.

There are : Universities 9 ; Arts and science colleges 159 ; Colleges for Commerce 11, Degree and post-graduate colleges for physical education 3 ; Degree and post-graduate colleges of education 13 ; Under-graduate colleges 35. Higher secondary schools 680 ; High schools 807 ; Middle/senior basic schools 5,501 ; Primary/junior basic schools 36,258 ; pre-primary schools 296 ; Schools for handicapped 5.

Pop. 39,805,000.

Maharashtra

Maharashtra consists of three regions, each having its own pattern of educational ladder : (1) Erstwhile Bombay State : Primary/junior basic/lower primary stage consists of 4 classes (I to IV), middle/upper primary/senior basic of 3 classes (V to VII), high of 4 classes (VIII to XI). (2) Area of the erstwhile Madhya Pradesh State (Vidarbha Region) : primary stage comprises 4 classes (I to IV), middle 3 classes (V to VII in Indian middle schools), or 4 classes (V to VIII in English middle schools), high 2 classes (IX to X), higher secondary 3 classes (IX to XI). (3) Area of erstwhile Hyderabad State (Marathwada Region) : primary/senior basic consists of classes I to V ; middle/senior of classes VI to VIII, and high of classes IX to XI.

Minimum age for admission to the primary stage is 5⁺ years. Mother tongue, *i.e.*, Marathi for most of the students, is the medium of instruction at all stages of school education. English, Urdu, Sindhi, Hindi, Gujarati, Kannada is the medium of instruction in a few secondary schools. Pupils are free to join any type of school. In the erstwhile Bombay State, Hindi is compulsory in all classes of Hindi medium schools, and in classes V to XI of other schools. In the erstwhile Madhya Pradesh

State (Vidarbha Region), Hindi is compulsory in classes I to IV of Hindi medium schools, and in classes V to XI of other schools. In area of erstwhile Hyderabad State (Marathwada State), Hindi is compulsory in classes V to XI. Teaching of English is compulsory in all classes of English medium schools and in classes V to VII of primary schools run by Lila Parishads/Municipalities in the western Maharashtra. It is compulsory in classes V to VI of secondary schools, except middle vernacular schools, in area of erstwhile Madhya Pradesh State (Vidarbha Region). It is compulsory in classes VI to XI in area of erstwhile Hyderabad State (Marathwada Region). Public examination is compulsory in erstwhile Bombay State at the end of class XI ; in the areas of erstwhile Madhya Pradesh State at the end of class IV, class X, and class XI ; and in the areas of erstwhile Hyderabad State at the end of class XI. There are 230 working days in the year. The academic session begins in the first week of June. Education is compulsory for the age-group 7-9 years. Education is free in classes I to V in government schools.

There are : Universities 2 ; Arts and science colleges 210 ; Colleges for commerce 19 ; Degree and post-graduate colleges of physical education 5 ; Under-graduate colleges of physical education 19 ; Degree and post-graduate colleges of education 32 ; Under-graduate colleges of education 44 ; Higher secondary schools 118 ; High schools 4,295 ; Middle/senior basic schools 15,413 ; Primary/junior basic schools 28,651 ; Pre-primary schools 508 ; Schools for handicapped 44.

Pop. 48,899,000.

Mysore

Primary stage covers seven years. Lower primary consists of classes I to IV, higher primary classes V to VII, high school classes VIII to X, and higher secondary classes VIII to XI. The minimum age for admission to class I of the primary stage is 5 years and 10 months. Generally mother tongue is the medium of instruction at the lower primary and higher primary stage. Other languages permitted as the media of instruction are Kannada, Hindi, Urdu, Tamil, Telugu, English, Marathi, Gujarati and Malayalam. Medium of instruction at the high/higher secondary stage may be English, Hindi, Telugu, Kannada, Tamil, Marathi or Urdu. Teaching of Hindi is compulsory in classes VI to IX, and optional in X and XI. There are three compulsory public school examinations : (i) Primary school certificate examination at the end of class VII, (ii) S.S.L.C. examination at

the end of class X, and (iii) Higher Secondary examination at the end of class XI. Number of working days at the primary school is 220, and at the higher secondary stage is 210. First term of the academic session begins in June and the long vacation is given from April to June. Education in government schools is free for classes I to X both for boys and girls.

There are : Universities 4 ; Arts and science colleges 136 ; Degree and post-graduate colleges for physical education 19 ; Undergraduate colleges for physical education 73 ; Higher secondary schools including multipurpose type 270 ; High schools including multi-purpose type 1,563 ; Middle/senior basic schools 10,494 ; Primary/junior basic schools 21,562 ; Teachers training schools 12 ; pre-primary teachers training schools 4 ; Schools for the handicapped 6.

Pop. 28,666,000.

Nagaland

Primary education consists of four years (classes A, B, I and II), middle 4 years (classes III to VI), and high 4 years (classes VII to X). There is no minimum age prescribed for admission to class I of the primary stage. Mother tongue *i.e.*, Angami, Sema, Lotha and Kuki written in Roman script is the medium of instruction at the primary stage ; English at the middle and high stages. Teaching of Hindi is compulsory for classes III to VIII. Teaching of English is compulsory at the primary, middle and high school stages. Three public examinations are held : (i) Lower Primary School Leaving Certificate at the end of class II, (ii) Middle S.L.C. and Scholarship Examination at the end of class VI and Matriculation at the end of class X. The number of working days at the primary is 264 and 229 at the middle/high. There are four terms : I term from Jan. to March ; II term from April to June ; III term from July to September ; and IV term from October to December. Compulsion is not in force. Education in government schools is free in classes I to X.

There are : Arts and science colleges 2 ; High schools (including multipurpose) 32 ; Middle/senior basic schools 144 ; Primary/junior basic schools 889 ; and teacher training schools 3.

Orissa

There are four stages of school education : (i) Primary/Seva Ashrams of five years (classes I to V) ; (ii) Middle/Ashrams of 2 years (classes VI to VII) ; (iii) High of 4 years (classes VIII to XI) ; and (iv) Higher Secondary of 5 years (classes VIII to XII). Oriya, the regional language is the medium of instruction at the Primary/

Middle/High/Higher Secondary stages. Students, whose mother tongue is a language other than Oriya, are permitted to study in their own mother tongue under special circumstances. Teaching of Hindi is compulsory in classes VI to XI of secondary schools. Teaching of English is compulsory in classes IV to XII. It is optional in classes VI to XII of post-basic schools, and classes VI and VII of Ashram schools. There are four compulsory public examinations : (i) Upper Primary Public Examination at the end of class V ; (ii) Middle School Certificate Examination at the end of class VII ; (iii) High School Certificate Examination at the end of class XI ; and (iv) Higher Secondary Examination Part I at the end of class XI, Part II at the end of class XII. The academic session begins in July. Education is compulsory for the age-group 6-11. Education is free for boys in classes I to V and for girls in classes I to XI.

There are : Universities 4 ; Arts and science colleges 73 ; Degree and post-graduate teacher training colleges 5 ; Under-graduate teacher training colleges 30 ; Teacher training schools 51 ; Higher secondary schools (including multipurpose) 11 ; High schools (including multipurpose) 1,286 ; Post-basic schools 2 ; Middle/senior basic schools 3,903 ; Primary/junior basic schools 26,208 ; Schools for handicapped 2.

Pop. 21,159,000.

Punjab

Primary/basic primary consists of classes I to V, middle classes VI to VIII, high classes IX to X, and higher secondary classes IX to XI. Hindi or Punjabi is the medium of instruction at the school stage, depending on the region. English is the medium of instruction in classes IX to XI in some schools, for subjects like mathematics and science. English is a compulsory subject for classes VI to XI. Three public examinations are held : (i) Middle School Certificate Examination at the end of class VIII, (ii) Matriculation at the end of class X, and (iii) Higher Secondary Examination at the end of class XI. Academic session begins in April and is divided into three terms : first term April to June, second term July to December, and third term January to March. Education is compulsory for the age-group 6 to 11 years. It is free in government schools for classes I to VIII.

There are : Universities 3 ; Arts and science colleges 81 ; Degree and post-graduate teachers training colleges 18 ; Degree and post-graduate college of physical education 1 ; Higher secondary schools (including multipurpose) 296 ; High schools (including multipurpose) 785 ; Post-basic

schools 2; Middle/senior basic schools 870; Primary/junior basic schools 9,147; Schools for the handicapped 4.

Pop. 14,369,000.

Rajasthan

Four stages of education are: (i) Primary/junior basic of 5 years (classes I to V), (ii) Middle/senior basic of 3 years (classes VI to VIII); High of 2 years (classes IX to X), (iii) Higher Secondary of 3 years (classes IX to XI). Minimum age for admission to class I is 6+ years. Hindi is the medium of instruction at all stages of school education. Provision of teaching through mother tongue for students belonging to linguistic minorities exists in classes I to V, provided the number of such students is 10 in a class, or 40 in the school. Languages used for such purposes are Gujarati, Sindhi, Urdu and Punjabi. Hindi is taught as a compulsory subject in all classes for students whose mother tongue is Hindi. It is compulsory in classes III to XI for students belonging to linguistic minority and being taught through the medium of their mother tongue. English is taught as a compulsory subject in classes VI to XI. It is taught from class V wherever possible. Two public examinations are conducted at the school stage: (i) Matriculation at the end of class X, (ii) Higher Secondary at the end of class XI. Number of working days at the school stage is 250. Academic session begins in May and consists of 3 terms. Education is free for classes I to VIII for boys and I to XI for girls in government and local body schools.

There are: Universities 3; Arts and science colleges 80; Degree and post-graduate college of physical education 1; Degree and post-graduate teachers training colleges 14; Under-graduate teachers training colleges 43; Higher Secondary schools 347; High schools 659; Middle/senior basic schools 1,943; Primary/junior basic schools 18,907; Schools for the handicapped 3.

Pop. 25,588,000.

Tamil Nadu

There are three stages of school education: lower primary/junior basic covering classes I to V (5 years); upper primary/senior basic covering classes VI to VIII (3 years); and high schools covering classes IX to XI (3 years). Generally speaking mother tongue or the regional language is the medium of instruction. Permission has been given to a few schools to have English as the medium of instruction. Heads are free to adopt English or the regional languages as the medium of instruction for the

teaching of composite mathematics. Teaching of English is compulsory for classes IX to XI. There is only one public examination conducted at the end of class XI. Number of working days in primary is 220, and in middle and high schools is 200. The academic session begins in July: 1st term is July to Dec. and the 2nd term is December to 15th May. Education is compulsory for the age-group 6-11 years. Education is free for classes I to XI.

There are: Universities 3; Arts and science colleges 126; Undergraduate colleges for physical education 3; High schools (including multi-purpose) 2,506; Post-basic schools 3; Middle/senior basic schools 6,027; Primary/junior basic schools 25,432; Pre-primary schools 69; Pre-primary teacher training schools 4; Schools for the handicapped 21.

Pop. 38,859,000.

Uttar Pradesh

School education consists of 3 stages: Junior basic of 5 years (classes I to V); Senior basic of 3 years (classes VI to VIII); High school of 2 years (classes IX to X). Minimum age of admission to class I is 5+ years. In general Hindi is the medium of instruction at all stages of school education. English is the medium of instruction in Anglo-Indian schools. Hindi is a compulsory subject in all schools from classes I to X except those primary classes where the medium of instruction is mother tongue, other than Hindi. It is compulsory from class III as a language subject in case of students whose mother tongue is other than Hindi. It is compulsory in classes I to V of Anglo-Indian schools. English is compulsory for classes VI to VIII. There are 2 public examinations: (i) Junior high school examination at the end of class X, (ii) High school examination at the end of class X. Number of working days in primary and middle schools is 215, and in high schools 220. First term is from 1st July to 31st Dec. and second term is from 1st Jan. to 30th June. Education is compulsory for age group 6 to 11 years. Education is free for boys in classes I to VI and for girls in classes I to X.

There are: Universities 11; Arts and science colleges 208; Degree and post-graduate teachers training colleges 63; Under-graduate teachers training colleges 10; Degree and post-graduate college of physical education 1; Under-graduate college of physical education 1; Higher secondary schools 1,638; High schools 1,349; Middle/senior basic schools 7,385; Primary/junior basic schools 61,172; Schools for the handicapped 22.

Pop. 88,911,000.

West Bengal

Primary/junior basic stage covers 5 years (classes I to V); Junior high/senior basic 3 years (classes VI to VIII); High 2 years (classes IX and X) and higher secondary 3 years (classes IX to XI). Minimum age of admission for class I is 6+ years. Mother tongue is the medium of instruction at the primary stage; English is the medium in Anglo-Indian schools. Mathematics and science are taught through the medium of English to students whose mother tongue is neither Hindi nor Bengali. Hindi is compulsory for classes VI and VII for pupils whose mother tongue is Bengali. English is compulsory for classes III to XI. Four compulsory examinations are held: Primary examination at the end of class IV; Junior Madrasa examination at the end of class VI; School Final at the end of class X; Higher Secondary examination at the end of class XI. Number of working days in the primary school is 210, and in the middle and high schools is 200. First term is from Jan. to June; second term from the middle of June to October; and third term from October to December. Education is compulsory between the age-group 6-11 years.

There are: Universities 7; Arts and science colleges 181; Degree and post-graduate colleges for physical education 3; Degree and post-graduate teachers training colleges 34; Under-graduate teachers training colleges 52; Higher secondary schools (including multipurpose) 1,810; High schools 1,711; Middle/senior basic schools 2,483; Primary/junior basic schools 34,680; Schools for the handicapped.

Pop. 43,774,000.

Education in the Union Territories

Andaman and Nicobar Islands

Primary stage consists of 5 classes (classes I to V), Middle 3 years (classes VI to VIII) and Higher Secondary 3 years (classes IX to XI). The minimum age of admission to class I is 6+ years. Hindi is compulsory for all classes. Elementary Hindi is taught from classes III to IX in the case of scholars whose mother tongue is not Hindi. English is a compulsory subject for classes IV to XI. There is one examination conducted at the end of class XI. The number of working days in the primary/middle/higher secondary is 230 days. The first term is from 1st May to August, the second from Sept. to Dec., and the third from Jan. to 30th April. Compulsion is in force in classes I to V in municipal area of Port Blair for the age-group 6 to 11. Education is free for classes I to XI.

There is one arts and science college. There are seven higher secondary schools, 12 middle/senior basic schools, and 118 primary/junior basic schools.

Dadra and Nagar Haveli

Primary stage comprises 4 classes (classes I to IV), upper primary 3 classes (classes V to VII), and high 4 years (classes VIII to XI). Gujarati/Marathi is the medium of instruction in junior basic and senior basic classes and Gujarati in high classes. Teaching of Hindi is compulsory in classes V to XI. Teaching of English is also compulsory for classes V to XI. There are two public examinations at the end of class VII and at the end of class XI. The number of working days is 234 in primary as well as high stage of education. First term is from 11th June to 4th November and second from 5th November to 10th June. School education is free. Textbooks, writing material and free mid-day meals are supplied by the Administration to all pre-primary and primary schools. The poor Adivasi pupils are supplied free clothes. The Administration is running seven Adivasi hostels (including one for girls) and an Ashram school. All primary and secondary schools are co-educational. There are 4 pre-primary, 157 low/junior basic, 22 higher primary/senior basic and 4 high schools.

Delhi

Delhi is one of the Union Territories in the country administered by the President *i.e.*, the Central Government, through an Administrator namely, the Lt. Governor of Delhi. It has an elected body, the Metropolitan Council, which does not have any legislative powers. There is an Executive Council composed of four Executive Councillors who belong to the majority party in the Council. Education is one of the subjects under the authority of the Executive Council.

The responsibility for Primary Education rests with the Local Bodies, namely, the Municipal Corporation of Delhi, New Delhi Municipal Committee and the Delhi Cantonment Board. However, the responsibility for prescribing the syllabi and developing curricula rests with the Directorate of Education, Delhi Administration. Technical education and training are under a separate Directorate. The Directorate of Education plays a limited role as regards higher education. The Delhi Administration have opened twelve colleges in Delhi.

About 92% of the children in the age-group 6 to 11 attend school. The percentage of children in the age-group 11 to 14 rose from

27% in 1950-51 to 80% in 1969-70 and in the age-group 14 to 17 it rose from 15 to 54 during the same period. Education upto class VIII is tuition free. The needy students are provided with textbooks free of cost at all stages from classes I to XI. In order to enable the girl students to reach schools which are at some distance in rural schools, a scheme for providing free transport facilities is under operation. At various centres remedial classes for weak students are conducted free of cost. Many Study Centres exist for those students who may be lacking suitable facilities at home. Special classes for talented students are also held at various schools after school hours.

As many as 41 books out of 53 for classes I to VIII have been nationalised and brought out departmentally. Delhi is so far the only place in the country which has the benefit of education through television. Delhi has a unique contribution of promoting 'Correspondence' education both at the school and university levels.

Goa, Daman and Diu

Education is compulsory for the age-group 6 to 11 years. It is free up to standard VIII in all schools. Freeships are given to the children of political sufferers, displaced persons, goldsmiths, teachers, service personnel and backward classes. During 1969-70, there were 931 primary, 217 middle, 177 high, 3 technical high schools, 5 arts and science colleges, and one commerce college. Besides, a post-graduate centre established by the Bombay University was conducting M.A., M.Sc., M.Ed. and Ph.D. courses. Minimum age of admission to class I is 5⁺ years. Languages like Portuguese, Konkani, Kannada, Urdu, Hindi, Gujarati, English, and Marathi are used as media in the primary classes, and in the Middle English generally. At the High/Higher Secondary Stage, English is generally used as the medium. However, Gujarati, Urdu and Marathi media schools also exist for primary and secondary levels. Teaching of Hindi is compulsory in classes III to X. It is optional in class XI. It is compulsory in all classes in the Hindi medium schools. There are two public examinations conducted : (i) Primary School Certificate at the end of class VII and (ii) at the end of class XI. Examination at the end of class XI is conducted by three different boards according to affiliation of schools. The three boards are (i) S.S.C. Board, Gujarat, Ahmedabad ; (ii) S.S.C.E. Board, Maharashtra, Poona ; (iii) Central Board of Secondary Education, New Delhi. Number of working days during the year in primary and

secondary schools is 220. First term is from 10th June to 12th October and second from 30th October to 26th April.

Laccadive, Minicoy and Amindive Islands

Educational ladder consists of Pre-primary/nursery (not compulsory) 2 years ; Lower Primary/Junior Basic 4 years (standards I to IV) ; Upper Primary/Senior Basic 3 years (classes V to VII) ; High 3 years (classes VIII to X) and Higher Secondary 4 years (VIII to XI). Minimum age of admission to class I is 5⁺ years. Malayalam is the medium of instruction at the primary, middle and high stage and English at the Higher Secondary. Teaching of Hindi is compulsory in classes IV to XI. English is compulsory in classes III to X in High Schools, and classes I to XI in Higher Secondary Schools. High School Examination is conducted by the Board of Public Examinations, Kerala, at the end of class X and Higher Secondary at the end of class XI by the Central Board of Secondary Education, New Delhi. The number of working days at the primary/middle/high school is 220 and at the higher secondary 234. First term lasts from the first week of May to the last week of August; second term from the first week of September to the last week of December and third term from the first week of January to the last week of April. Compulsion is not in force. School education is free. Students desiring to take up further studies are admitted in the institutions on the main land and for this purpose they are given scholarships over and above full concessions. Students studying in pre-degree/B.A./B.Sc. and other degree classes and residing in hostels are allowed disbursement of actual expenses in lieu of scholarships. Textbooks and writing material are provided free to all pupils studying in the Island schools. Two sets of uniforms are supplied to all students. Free mid-day meals are given to all in the nursery, junior basic and senior basic schools. There were 6 pre-primary, 19 lower primary, 8 higher primary, 4 high (including one incomplete high school at Minicoy) and one higher secondary school in the territory during 1969-70.

Manipur

Primary/junior basic stage is of 5 years' duration, Middle/junior high 3 years (classes VI to VIII), High 4 years (classes VII to X), and Higher Secondary 3 years (classes IX to XI). There is no minimum age prescribed for admission to class I. Mother tongue is usually the medium of instruction at the primary and middle stages. English is the medium of instruction in all schools except three. Hindi is

compulsory in classes IV to VIII of high schools and classes IX and X of higher secondary schools. English is compulsory in classes III to XI. Four public examinations are conducted : (i) Primary School Leaving Certificate Examination at the end of class V, (ii) Middle School Leaving Certificate Examination at the end of class VIII ; (iii) Matriculation at the end of class X ; and (iv) Higher Secondary Examination at the end of class XI. Number of working days at the primary, middle and high stage of education are 265, 265 and 250 respectively. The first term is from 1st Feb. to 30th June, the second term from 1st July to 31st Oct., and the 3rd term from 1st November to 31st January. Compulsion is not in force. Education is free up to the end of secondary stage. Education is free for all students belonging to scheduled castes and scheduled tribes up to the end of university stage. So far educational facilities have been provided for 79% of the children in 6-11 age-group and 42 per cent of the children in 11-14 age-group.

There are arts and science colleges 3 ; Higher secondary schools 21; High schools 101; Middle/senior basic schools 305 ; and Primary/junior basic schools 2,117.

NEFA

Minimum age of admission to class I is 5+ years. The medium of instruction in primary classes is tribal languages in Devnagari script, except Khamti language which is written in Tai script. Assamese is the medium at the middle stage. English is the medium for classes VIII upwards except for subjects like Assamese language and Social Sciences. Hindi is compulsory in classes I to VIII. English is compulsory for classes IV to XI. Two public examinations are conducted : (i) Primary School Leaving Certificate Examination at the end of class III and (ii) Middle S.L.C. Examination at the end of class VI. Number of working days during the year is 235. Compulsion is not in force. All education is free.

Pondicherry

There are three patterns of schools : I. French Schools : (i) Primary and lower secondary includes seven classes (Douzieme A, Douzieme B, Onzieme, Dixieme, Neuvieme, Huitieme, and Septieme), and (ii) High includes 4 classes (Sixieme, Cinquieme, Quatrieme, Troisieme) ; II. Regional Language Schools : (i) Primary, 5 years including standards I to V, (ii) Upper primary 3 years including standards VI to VIII, and (iii) High 3 years

including standards IX to XI ; III. English Schools : (i) Primary, 5 years (classes I to V), (ii) Middle, 3 years (classes I to III), and (iii) High, 3 years (classes IV to VI). The minimum age of admission to the primary stage is 5+ years. Mother tongue is the medium of instruction in Regional Language Schools, English in English schools and French in French schools. English is compulsory in all classes in English schools ; in higher stages in French schools ; in standard VI to X in Tamil Nadu pattern of schools ; in classes III to XI in Andhra pattern of schools and in classes III to X in Kerala pattern of schools. Seven types of public examinations are held. Number of working days at the primary and middle stage is 220 and at the high 200. First term is from 16th June to 26th September, second from 10th October to 31st December and third from 15th January to 15th April. Compulsion is not in force. Education up to the end of the secondary stage is made free in all government schools. Note books and stationery articles are supplied free to the economically backward pupils in classes I to III. There are 249 lower primary schools, 78 higher primary schools, 45 high schools, and 5 colleges. Besides, there are 4 pre-vocational training centres, one junior technical school, one polytechnic and 2 teachers training centres.

Tripura

Primary/Junior basic is of 5 years' duration (classes I to V), middle/junior high/senior basic of 3 years (classes VI to VIII), High of 2 years (classes IX to XI), and Higher Secondary of 3 years (classes IX to XI). The minimum age of admission to class I is 6+ years. Bengali is the medium of instruction at all stages. Tribal language is allowed for imparting primary education to the tribal students in a particular small area. English is compulsory in classes III to XI. Two public examinations are conducted : (i) School Final at the end of class X ; (ii) Higher Secondary Examination at the end of class XI. Number of working days during the year is 243. First term is from 2nd January to 14th May, second from 19th June to 27th September and third from 1st November to 31st December. School education is free for boys in classes I to VIII and for girls in classes I to XI. For scheduled tribe and scheduled caste girls, education is free up to the collegiate stage. Free uniforms are provided to scheduled caste and scheduled tribe girls in classes III to VIII. Textbooks are provided free to scheduled caste and scheduled tribe girl students. There are 364 pre-primary

(including *balwadi*) centres, 1,395 Lower primary schools, 202 Higher primary schools, 82 High/higher secondary schools, 5 General degree colleges with a postgraduate wing in one college, 1 Degree college in engineering, 1 Polytechnic, 1 Music college, 51 Sanskrit *tols*, *Madrasas* and *Maktabas* and 6 teacher training colleges.

INDONESIA

The constitution (1959) stipulates that the authorities shall promote the spiritual and physical well-being of the people, shall provide education for all, and shall aim at a speedy introduction of compulsory primary education. The Fundamental Education Act of 1950 defines the aim of education as being the development of moral character and the rearing of democratic citizens, and lays down that education will be based on the *Pantja-Sila*, the philosophy of the Republican Constitution.

The nursery-infant schools are privately organized. Education is free and compulsory where adequate facilities are available, and compulsory education from the age of 7 to 14 is to be extended to the whole of the country. The primary school (*sekolah rakyat*) is of 6-year duration, and the rural primary school operating on a 3-year basis is being progressively converted into 6-year complete school. All types of general vocational and technical secondary education is available to pupils who have completed the primary school and have passed the entrance examination. The general secondary education is available first in the lower general secondary school (*sekolah menengah pertama*), and then in the upper general secondary school (*sekolah menengah atas*), each lasting for 3 years. The 4-year post primary teacher training school (*sekolah guru B*) and the 3-year teacher training school (*sekolah guru A*) are open to pupils after passing the primary school and junior high school respectively. The Central Government provides public secondary and university education, while provincial government is responsible for public primary education.

The Department of Education has two offices for general and vocational education respectively. Each type of secondary education is supervised by its own central inspectorate. Administration of the primary education is in the hands of provincial and local authorities. Each province has its own provincial office of education responsible to the provincial administrative board. The provincial office of education has its branches in the regencies (sub-divisions).

Pop. (1968 est.) 115,130,000. Edu. (1965-66): Primary, schools 61,678, pupils 15,949,109,

teachers 343,029; Secondary, schools 7,409, pupils 1,453,834, teachers 67,605; 28 State universities and 26 private universities.

IRAN

The Organic National Education Act (1911) includes the following provisions: primary education is compulsory; a rural primary school shall be established in each village and suburban district; special regulation will be issued to govern the free education of needy pupils in secondary schools and universities; corporal punishment is forbidden in all schools.

The kindergartens (*koudakestan*) are open to children between the ages of 3 and 6. Education is free and compulsory between the ages of 7 and 12. Under the new education system introduced in 1965, the duration of primary schooling has been fixed at five years. The primary school (*dabestan*) is followed by a three-year guidance stage (classes 6, 7 and 8). After the guidance stage pupils may go to the general secondary school of 4-year course, or to any one of the technical and vocational schools consisting of two cycles of two and four years respectively, or to a primary teacher training school of 2-year course.

There has been a redistribution of ministerial responsibilities by the establishment of the Ministry of Science and Higher Education in 1968. The Ministry of Education is now responsible for primary, secondary, vocational and technical education, while research and all higher and university education come under the Ministry of Science and Higher Education. The educational structure is centralized. The Higher Council for National Education is an advisory body which assists the Ministers. The Ministry of Education transmits instructions to the Directors-General for Education in the towns and provinces regarding syllabuses and regulations approved by the Higher Council for National Education. Inspectors of Education for secondary schools are chosen from the Principals and teachers with a minimum of 10 years' teaching experience.

Pop. (1968 est.) 28 million. Edu. (1967-68): Primary, pupils 2,575,667, teachers 76,586; Secondary general, pupils 673,737, teachers 21,454; Teacher training, pupils 6,681; 8 universities, students 36,742. Edu. budget (1967) 17,021 million rials; 19% of total recurrent State expenditure; 3.6% of gross national product.

IRAQ

The Education Law (first passed in 1929 and revised in 1940) specified a minimum age

of 6 years for admission to the primary school and 6-year duration for the primary course. The aim of education is to provide the children with a basic general culture and to help them to discover and develop their capabilities and aptitudes, so that they become good citizens, sound in body, mind and character.

Pre-primary education for two years from the age of 4 is mostly a private concern. Primary education is compulsory between the ages of 6 and 12 years. This target may be achieved by the end of 1970. The Ministry of Education is planning to extend the period of compulsory education from six to nine years. Primary school (*Ibtida' iyah*) covers a six-year course leading to a public examination. The general secondary education is organized in two cycles: 3-year intermediate (lower secondary) cycle followed by 2-year preparatory (upper secondary) cycle. The preparatory cycle is diversified into three streams: literary, scientific and commercial. The vocational and technical education covers a 5-year course after the completion of primary school or 2 or 3-year course after the intermediate cycle of general secondary education.

The Minister of Education is responsible for education. The Education Council with the Minister as the chairman lays down educational policy and approves the curricula and textbooks. There is a Director of Education in each of the 14 provinces. Under a process of decentralization, more responsibility has been delegated to the provincial authority, particularly in matters of primary education.

Pop. (1968 est.) 8,540,000. *Edu.* (1967-68): Primary, pupils 1,007,959, teachers 51,839; Secondary general, pupils 254,033, teachers 8,663; Teacher training, pupils 14,738; 4-universities, total enrolment 23,000. *Edu. expenditure* 48,646,956 dinars.

IRELAND

The constitution (1937) includes the following provision related to education: The State acknowledges that the primary and natural educator of the child is the family; parents shall be free to provide the education of their children in their homes, or in private schools, or in schools recognized or established by the State; the State shall, however, as guardian of the common good require that the children receive a certain minimum education—moral, intellectual and social; the State shall provide for free primary education.

Provision for pre-school education is made for children in the age-group of 4 to 6 in infant

schools and in the junior departments of public elementary schools known as 'national schools', and the salaries of teachers are paid by the State. Some private kindergartens exist for children in the 3 to 4 age-group. Schooling is compulsory for children aged 6 to 14 years. A child may commence education at a national school at the age of 4 and may continue till the age of 18. Primary education covers six classes, but a fairly large national school will have one infant class, six primary classes, and the 'lower secondary top' (7th and 8th classes), i.e., nine classes in all covering the whole period of compulsory schooling. Secondary education is given mainly in two types of schools: grammar school and technical and vocational school. The secondary (grammar) school consists of 6 classes, the first and second classes corresponding to the seventh and eighth classes of a national school. The secondary (grammar) schools are all private institutions maintained by the churches, religious orders, or others but aided by the State. Two main sections of vocational education are continuation education and technical education. The continuation school (3 years) is a vocational secondary school with technical, rural, commercial or domestic science courses, and it continues and supplements the education provided in the National School (up to 8th class).

The public education is controlled and administered by the Department of Education under the Minister for Education. The Department of Education consists of a Permanent Secretary and a school inspectorate whose members are located throughout the country. A Council of Education advises the Minister on matters relating to educational theory and practice.

Pop. (1967 est.) 2,899,000. *Edu.* Pre-primary and primary, pupils (1966-67) 510,468; Secondary general, pupils (1967-68) 118,807; Teacher training, pupils (1967-68) 1,893; Two universities. *Edu. budget* (1968-69) £54,881,183; 17.6% of total State budget; 5% of national income.

ISRAEL

With the establishment of the new State of Israel in 1948, the responsibility for the complete educational system passed from the Jewish National Council to the new administration. The Compulsory Education Law 1949 made education universal, free and compulsory for all children from the age of 5 to 14 without distinction of race, religion or sex. It covers

one year of pre-school education (ages 5-6) and 8 years of primary education (ages 6-14), a total of nine years. The Law also stipulates that young workers aged 14-17, who have not completed education, shall be released from work to complete it. A second law, the State Education Law 1953, aimed at 'depoliticisation' of education, and banned undue influence, political or ideological, from the schools. The State-maintained or aided schools were henceforth divided into four groups—State schools, State religious schools, State Arab schools and non-State-recognized schools.

Schooling is free and compulsory in kindergartens for the 5-year old children. The privately managed pre-kindergarten classes for children (ages 3-5) are also very popular and cover one-third of the total pre-kindergarten age-groups. The kindergarten is followed by 8 years of primary school and four years of secondary school. There is a tendency to transfer from primary school to secondary school at the age of 12 (instead of 14), after 6 years of primary schooling. In that case, secondary education lasts 6 years, the first 2 years falling within the framework of compulsory and free education. Secondary schools are of three major types: the academic 4-year secondary schools (ages 14-18), or 6-year secondary schools (12-18); the secondary vocational schools offering courses of 2, 3 or 4 years; the secondary agricultural schools having courses of 2, 3 or 4 years. At the age of 13+, children are selected for the proper type of schooling on the basis of a nation-wide achievement and aptitude test (the *seker*) and their individual school records. About half the number of students in secondary education are exempted from tuition fees, and many others receive a graded reduction according to the income of the parents. After obtaining the secondary school certificate, at the end of the secondary course, students have to take the *Bagrut* (matriculation) examination which entitles them to admission to institutions of higher education. There has been a rapid development of higher education through the three national university institutions—the Hebrew University, the Technion and the Weizmann Institute of Science, the local academic institutions of higher learning, the post-secondary schools for special subjects and the training colleges.

The Ministry of Education and Culture has educational control over kindergartens, primary and secondary schools, schools for young people and institutes of teacher training. Universities

are generally independent institutions. The Jewish schools have a strong Hebraic element in their curriculum, and Hebrew is the language of instruction. Arab education has made steady and rapid progress, and the values inherent in the national-religious culture of the Arabs are emphasized in Arab schools, where the language of instruction is Arabic, and the second language is Hebrew. Two-thirds of Jewish population, who have immigrated since 1948 from different countries, present varied educational backgrounds, and different cultures and approaches. This poses a challenging problem. Measures have been taken to facilitate the absorption of these children into existing educational system of the country.

Pop. (1968 est.) 2,841,000 *Edu.* (1967-68): Pre-school (ages 3-6), pupils 106,100, teachers 3,400; Primary, pupils 475,700, teachers 25,600; Secondary (academic, vocational and agricultural), pupils 151,000, teachers 12,000; Teacher training, 7,800, teachers 1,300; Higher (including 3 national universities) students about 30 thousand. *Edu. budget* (1967-68) 467 million Israeli pounds; 13.5% of State budget; 4% of national income.

ITALY

The fundamental principles which underlie the Italian educational system are to be found in the Italian constitution (1947), which includes the following provision: It is the responsibility of the State to create State schools of all types; private organizations and individuals have the right to establish schools and other educational institutions, without support from the State; education shall be both compulsory and free for all children between the ages of 6 and 14 years; students of merit and ability, even if they lack means, shall have the right to pursue studies to the highest level, this right being ensured by the provision of scholarship, family and other allowances on a competitive basis.

Pre-primary education is provided for children between 3 and 6 years of age in various types of establishments known by names associated with special methods: *scuole materne* follow Agazzi method; *case dei bambini*, Montessori method; and *giardini d'infanzia*, Froebel method. Attendance is optional in these schools, which are run by the State, communes, religious orders or private organizations. An Act of 1968 aims to organize State nursery schools which will be free, and will help in preparing the children for entrance to compulsory schooling. Free compulsory schooling for children between 6 and 11 years of age is provided in primary schools

lasting 5 years. It is organized in two stages : the first stage corresponding to early childhood (6—8 years) consists of the first two years ; and the second stage corresponding to childhood (8—11 years), the last 3 years. Examinations are held only at the end of each stage ; instruction given is of a global nature where all parts (subjects) are related to one another ; and the curriculum is the same for all schools. At the end of the fifth year of primary schooling, a certificate (*licenza*) is granted. Free compulsory schooling for children between 11 and 14 years of age, corresponding to pre-adolescence, is provided in two types of schools : *scuola media* (lower secondary school) lasting 3 years, and *scuola di avviamento professionale* (pre-vocational training school) lasting 3 years. The pupil's choice between the two types depends on the wishes of the parents. Generally speaking, students desirous for a university education enter the *scuola media* and those who intend to qualify for a particular trade opt for the pre-vocational training school. There are also a number of technical schools, at this level, including various types of vocational training institutes with varying lengths of courses according to the specialization. Relations between primary and lower secondary education are increasingly intensified in order to ensure continuity in the compulsory schooling provided for by the constitution (5 years' primary education and 3 years' lower secondary).

At the upper Secondary level, which is beyond the compulsory stage, there are three main types of schools—academic, vocational and technical. To the academic type belong the *liceo classico* (upper general secondary school emphasizing instruction in classics) offering 5-year course, the *liceo scientifico* (upper secondary school emphasizing instruction in science) offering 5-year course, and the *istituto magistrale* (teacher training school) offering 4-year course. The *liceo classico* is the school most deeply rooted in Italian traditions. There is no substantial difference between the curricula of the two *licei*, except that in *liceo scientifico*, foreign language is taught instead of Greek, and drawing instead of the history of art. At the *liceo scientifico* more time is given to purely scientific subjects, and less time to literary studies. The *istituto magistrale* provides general cultural and professional education for students intending to teach in primary schools. The vocational institutes (*istituti professionali*) train pupils for various occupations in industry, agriculture, commerce, trade, tourism and hotel work and offer courses of two to three years. The technical institutes

(*istituti tecnici*) also train pupils for various specialized occupations and offer courses of five years. In addition to these, the *liceo artistico* offers a 4-year course for pupils who wish to continue studies in academies of fine arts, or in the university faculties of architecture. Higher education is provided in 30 universities and higher educational establishments, usually known as universities or higher institutes. Each university, whether private or run by the State, has its own autonomous status, though it comes under the control of the Ministry of Education with reference to the legality of its administrative acts. It is also financed by the Ministry.

The Ministry of Education is the central body responsible for public education, provided in all types and levels of schools. The Minister of Education carries out his responsibilities through the provincial superintendents of each Italian province. He is assisted by a top advisory body, known as the Higher Council of Public Education comprising three sections : one for university education, one for secondary education, and one for primary education. The technical-didactic supervision is carried out by central inspectors who are selected and appointed from among school heads, senior teachers and high officials of the Ministry after a competitive examination.

Pop. (1967 est.) 53,656,000. Edu. (1967-68) : Primary, pupils 4,646,024, teachers 220,714 ; Secondary (lower), pupils 1,887,074, teachers 157,086 ; Secondary (upper-classical, scientific and teacher training), pupils 580,915, teachers 39,396 ; Technical and vocational, pupils 798,403, teachers 64,090 ; Higher, students 456,643. Budget of the Ministry of Education (1967-68) 1,653,589 million lire.

IVORY COAST

The Ivory Coast is a one-party, democratic republic which became independent on 7th August, 1960. Before it gained independence, education was the responsibility of the Rector of the Academy of French West Africa. Now the Ministry of Education is in charge of primary, secondary, technical and higher education, while specialized schools are controlled by other ministries.

Schooling is not compulsory. Minimum ages for admission to school are 6 years at primary level and 11 years at secondary level. The primary school consists of three two-year cycles leading to the primary school certificate, which enables a pupil to enter a secondary or technical school on a competitive basis. The lower secondary level consists of a four-year course and leads to the lower secondary certificate. The

pupils may then go on to the upper secondary level of further 3-year course, diversified in five streams, and leading to the different *baccalauréats*. The duration of technical and vocational education varies from two years for the vocational proficiency certificate to five years at the technical *lycée* which pupils enter after completion of lower secondary level education. Higher education in the sciences and arts has been brought into line with the structures adopted in France: first stage of two-year course leading to a university diploma; second stage leading to the first degree in the 1st year and to

the Master's degree in the 2nd year. The inspection of primary education is carried out by inspectors and school counsellors; the inspection of secondary schools is entrusted to French general inspectors at the Government's request.

Pop. (1967 est.) 4,010,000. Edu. (1967-68): Pre-primary and Primary, pupils 297,878, teachers 6,521; Secondary general, pupils 28,612, teachers 1,075; Teacher training, students 305; University at Abidjan, students 1,712. Budget of the Ministry of Education 9,238,917,000 CFA francs; 14.6% of total State budget; 3.1% of national income.

J

JAMAICA

Education is governed by the comprehensive Education Law. Education is compulsory for children between 7 and 15 years of age in certain areas. Infant training 4-7 years, primary education 7-12 years and post-primary education 12-15 years are free. About 50 percent of primary school buildings are owned by various religious denominations, but the government pays the full cost of staff salaries and equipment. Secondary education is provided in grammar schools from where the students go to the university, technical high schools or senior modern schools providing non-academic secondary education. Pupils between 11 and 13 years of age are recruited for the grammar schools through a competitive examination.

The Minister of Education is responsible for public education. He is advised by the Education Advisory Council. There are seven inspectorial districts, each under a senior education officer. A school board is appointed by the Minister of Education in each of the 21 school districts for the general supervision of primary education.

Pop. (1967 est.) 1,876,000. Edu. (1966): Primary, schools 742, pupils 333,272, teachers 5,853; Senior, schools 14, pupils 13,062, teachers 337; Secondary, schools 52, pupils 26,686, teachers 1,364; University at Kingston, students 3,614.

JAPAN

The constitution (1946) establishes the right of all to equal educational opportunity corresponding to their ability and provides for nine years of free and compulsory education. The Fundamental Law of Education (1947) sets

forth in more detail the aims and principles of education in accordance with the spirit of the constitution. It states, 'Education shall aim at the full development of personality, striving for the rearing of the people, sound in mind and body, who shall love truth and justice, esteem individual value, respect labour and have a deep sense of responsibility, and be imbued with the independent spirit, as builders of the peaceful State and society.' The Law, as an initial reactor for a chain of reforms, brought about the decentralization of public education, the establishment of the 6+3+3+4 school system, reorientation of curricula and methods of teaching, and the total restructuring of the educational administration in the country.

The framework of education is based on a single-track system organized on the 6+3+3+4 plan: 6 years of elementary education followed by 3 years of lower secondary, 3 years of upper secondary and 4 years of university or higher education. The first nine years covering the elementary and lower secondary schooling are compulsory. Various means are taken to secure the complete enforcement of the compulsory education system. The children required to enter the school, undergo a physical examination, which identifies the physically weak, undeveloped, blind or deaf. Weak or undeveloped children are permitted postponement of school entrance or complete exemption, the percentage of such cases being about 0.15% of children of compulsory school age. Decisions on the admissions of blind, deaf and other handicapped children are based on requests of parents. When a pupil is absent from school for more than 7 days without justifiable reason, his parents receive

an attendance demand from the municipal board of education. Neglecting the demand, the parents must be punished by fine. The percentage of enrolment on the compulsory level reaches nearly 100, and illiteracy is nearly non-existent.

Yochien is a kindergarten offering a course of one, two, or three years, but generally one year (from age 5 to 6). *Shogakko* is an elementary school and *Chugakko* is a lower general secondary school, sometimes known as 'secondary school', both covering the compulsory schooling for children from 6 to 15 years of age. By 1969-70 all pupils in compulsory education from 1st to 9th grades were provided with free textbooks. The maximum number of pupils per class in each elementary and lower secondary school which was prescribed as 50, has been reduced to 45 under a five-year plan implemented since 1964-65.

The minimum number of teachers in an elementary school is 1 per class and in a lower secondary school is 2 per class. The school hours required for each subject and extra curricular activities are prescribed by regulation. For instance, total school hours per year (and average school hours per week) are: for grade VI of elementary school—Japanese language 245 (7), Social Studies 140 (4), Arithmetic 210 (6), Science 140 (4), Music 70 (2), Art and Handicraft 70 (2), Home Making 70 (2), Physical Education 105 (3), Moral Education 35 (1), Total 1085 (31); for grade III of lower secondary school (the 9th year of compulsory education)—Japanese language 175 (5), Social Studies 140 (4), Mathematics 105 (3), Science 140 (4), Music 35 (1), Fine Arts 35 (1), Physical Education 105 (3), Industrial Arts or Home Making 105 (3), elective subject/subjects of a total 105 (3) [which may be a foreign language 105 (3), Agriculture 70 (2), Trades and Industries 70 (2), Fishery 70 (2), Business 70 (2), Music 35 (1), Fine Arts 35 (1), etc.], Moral Education 35 (1), Extra Curricular Activities 35 (1), Total 1120 (32). A school hour is defined as a class period of 45 minutes in elementary schools and of 50 minutes in lower secondary schools. The Curriculum Council submitted to the Ministry a report on the improvement of the primary school curriculum in 1967, and of lower secondary school in 1968, so as to fulfil the needs of a changing world.

Kotogakko-teijisei is an upper-secondary school (part-time) and *kotogakko-zennichisei* is an upper secondary school (full time), also known as 'high school'. Those who have passed from a lower secondary school are qualified to enter an upper secondary school. In case the

number of applicants exceeds the number of seats available, selection is made on the basis of school records and results of achievement tests and physical examinations submitted from lower secondary schools. A full-time upper secondary school is an ordinary day school offering 3 years course; and a part-time upper secondary school is attended by working youths generally in evening classes offering courses of 4 or more years. The courses in upper secondary schools are classified as general and vocational (agricultural, industrial, home-making, etc.) and schools having both the courses are called comprehensive schools. Some schools also provide correspondence courses. In addition to these regular schools, vocational and technical education has assumed great importance in the country.

Higher education is provided in *daigaku* (universities) and *tanki-daigaku* (junior colleges). The universities offer courses of 4 or more years leading to the degree of *Gakushi* (bachelor's degree), but the junior colleges offer 2 or 3-year courses, mainly vocational in nature which lead to a diploma, and not a degree. Japanese universities are classified into three categories—national, public and private. There are at present 73 national, 35 public and 209 private universities. After completing the upper secondary school one must successfully compete in the entrance examination given by the university for securing admission. The competition is very severe, applicants usually number up to 3 to 10 times as many as those admitted.

The activities of the Ministry of Education cover elementary and secondary education, higher education, science and culture. Japan is divided into 46 prefectures, each consisting of cities, towns and villages; a prefecture has a Board of Education; and each city, town or village has a Municipal Board of Education. All national educational activities, national schools and a number of educational institutions are administered by or are under the control of the Ministry of Education. Prefectural boards of education administer mainly upper secondary schools, special schools for the blind and deaf, and other institutions established by them. Municipal boards of education administer mainly elementary and lower secondary schools, and other institutions established by them. The National Government, prefectures and municipalities share among them the responsibilities for financing public education. The National Government provides subsidies to prefectures and municipalities; it defrays one half of the salaries of the teaching staff in the elementary and lower secondary schools, the other half being

defrayed by the prefectural governments. The Ministry of Education may offer necessary guidance, advice and assistance to local boards of education and local educational personnel on curriculum standards, methods of instruction and school management through official notification, supervision of local boards or schools, conduct of conferences and workshops or publication of manuals and handbooks for teachers. Supervisors of the Ministry of Education are responsible for elementary and lower secondary education in general, while supervisors of prefectural and municipal boards provide direct guidance and advice to school teachers.

Pop. (1967 est.) 100,428,000. *Edu.* (1967-68): Primary, pupils 9,452,071, teachers 353,496; Lower secondary, pupils 5,270,851, teachers 242,970; Upper secondary (full-time), pupils 4,301,380, teachers 201,252; Upper secondary (part-time), pupils 479,248, teachers 27,820; Higher—universities, students 1,160,425, teachers 101,131; Junior colleges, students 234,748, teachers 28,740; Technical colleges, students 33,998, teachers 3,593. Total educational expenditure incurred by the national, prefectural and municipal governments (1966-67) 1,574 billion yen; 5.4% of the national income. Budget of the Ministry of Education (1967-68) 622,961 million yen; 11.8% of State budget.

JORDAN

The Hashemite kingdom of Jordan is a hereditary monarchy with a parliamentary form

of government. The country became independent in 1946. The General Law on Education (1955) states that 'the basic aim of the Ministry of Education shall be to provide educational opportunities for all people, develop each individual's personality and civic responsibility and create a generation fully conscious of its duties towards God and the homeland'.

The period of compulsory schooling is nine years between the age limits of 6 and 16. Primary education lasts for 6 years for children between the ages 6 and 13, and is free in government schools. The preparatory or lower secondary level covers a 3-year course for children aged 14 to 16, and the upper secondary level covers a 3-year course for children aged 17 to 19. Successful candidates in the secondary school leaving examination may go to the university or the teacher training colleges. Study at the schools of vocational education is of 3 years' duration beginning after the preparatory level. The Ministry of Education undertakes the major share of responsibility for the various types of education and ensures the implementation of regulations and orders through the inspectors, both administrative and technical.

Pop. (1967 est.) 2,071,000. *Edu.* (1967-68): Primary, pupils 369,789, teachers 9,292; Secondary general, pupils 126,051, teachers 5,485; Teacher training, pupils 2,103; one university at Amman, students 2,292. Education budget 5,676,195 Jordanian dinars; 8.2% of total State budget; 2.9% of national income.

K

KENYA

Kenya became independent in 1963. The responsibility of education is vested in the Minister of Education. The public system of education is administered either directly by the central educational authority in cases of training institutions and special schools, or by regional educational boards in cases of secondary boarding schools and primary teacher training schools, or by district boards in cases of primary schools. Until 1960, the schools were grouped racially as European, Asian and African for financial and administrative purposes; school attendance was compulsory for European children, was partly compulsory for Asian children, but not at all compulsory for Africans and Arabs. Now mea-

sures have been taken to integrate the different systems and to provide a uniform and universal primary education for 7 years. At the end of the primary course of 7 years (sometimes 8 years for African children) a competitive examination is taken for entrance into a secondary school. The secondary school course leads to the School Certificate Examination at the end of 4 years, and to the Higher School Certificate Examination after two further years of study. There are various trade and technical schools providing School Certificate Examination in technical subjects. There are also teacher training institutions at secondary level mainly to meet the needs of primary schools. Higher education is on an inter-territorial basis. The university

college at Nairobi with about 1,500 students is a constituent college of the new university of East Africa founded in 1963 by incorporating the three university colleges of Kenya, Tanzania and Uganda. Students may attend other colleges in Tanzania and Uganda.

Pop. (1967 est.) 9,928,000. *Edu.* (1968): Primary, schools 5,799, pupils 1,133,179, teachers 30,000; Secondary (general and technical), schools 549, pupils 90,690, teachers 3,000; Teacher training, institutions 40, pupils 5,897, teachers 400.

KOREA, DEMOCRATIC PEOPLES' REPUBLIC OF

All educational institutions of North Korea are run entirely by the State. Education is free and compulsory for a seven-year period for children between 7 and 14 years of age. The 4-year of primary school is followed by 3-year of middle school. On completion of the middle school pupils may enter a two-year technical school offering both general and technical education, after which pupils may proceed to a two-year higher technical school, or to teacher training schools (3 to 4-year course) meant for kindergarten, primary or middle school teachers. There are also specialized schools which continue an 11-year course of general education with more intensive instruction in music, dancing, arts or foreign languages. Part-time evening and correspondence courses are provided for workers in 2-year workers' school, 3-year workers' middle school, two-year evening technical school and two-year evening and correspondence higher technical school. The administrative responsibility for all primary and secondary schools is vested in the Ministry of General Education.

Pop. (1967 est.) 12,700,000. *Edu.* (1964-65): Primary, schools 3,985, pupils 1,113,000, teachers 25,221; Middle, schools 3,217, pupils 704,000, teachers 27,162; university at Pyongyang.

KOREA, REPUBLIC OF

The constitution (1962) of South Korea lays down that all citizens shall be entitled to equal opportunities for education, and the attainment of at least an elementary education shall be compulsory and free of cost to the students. Schooling is compulsory and free for children from 6 to 12 years of age. Pre-primary education begins at the age of 4 and is available in cities and larger urban districts. Primary education lasts for 6 years for children between 6 and 12 years of age. The secondary education covers the six years between the seventh and the

twelfth grades. The course is divided into two stages of 3 years each: the lower secondary school (middle school) and the upper secondary school (high school). The middle school is the continuation of the primary school and is used as an orientation stage. In the high school stage pupils receive more advanced general secondary or vocational education such as teacher training, agriculture, engineering and commerce. For higher education there are junior colleges with 2-year courses, and colleges and universities with 4 to 6-year courses. Besides the usual formal education, the civic school proper offers a condensed 3-year course of primary education to cover the normal 6-year course of primary education; and the higher civic school offers a 3-year course on the secondary level.

The Ministry of Education is responsible for the planning and implementation of national policies in the field of education, science and culture. The Central Education Board serves as adviser to the Ministry. All national schools and institutions of higher learning are under the direct supervision of the Ministry. All secondary, vocational and higher vocational schools are under the control of the respective local governments, except for schools in Seoul which are administered by the board of education of the city of Seoul. All kindergartens, primary and civic schools are under the board of education of the educational district or city.

Pop. (1967 est.) 29,784,000. *Edu.* (1967-68): Primary school, pupils 5,382,500, teachers 89,277; Middle school, pupils 911,938, teachers 21,678; High school General, pupils 259,084, teachers 7,948; Universities 21; Colleges 46; Junior colleges 22; Graduate schools 57. *Edu.* budget (1967) 31,362 million won; 17.7% of total government expenditure; 2.8% of national income.

KUWAIT

Kuwait achieved independence in 1961 and adopted its constitution in 1962. The Ministry of Education is responsible for the first and second levels of education, while the Council of Higher Education under the chairmanship of the Minister of Education is responsible for higher education. The law on compulsory education came into force in 1966. It makes 8 years' compulsory attendance at primary and intermediate schools for children between 6 and 14 years of age. Education is free at all levels, and pupils are provided free of cost with textbooks, clothes, school supplies and meals during compulsory schooling. There are mainly four

types of schools : pre-primary schools for children between the ages 4 and 6 ; primary schools (ages 6-10) providing a 4-year course ; intermediate schools (ages 10-14) providing a 4-year course ; secondary schools offering a four-year course which can be of three types—academic, technical and teacher training. The 'academic' secondary schools lead to the Kuwaiti General Secondary Education Certificate which qualifies for admission to the university. The University of Kuwait, inaugurated in 1966, is the only

university in the country. There is also an Institute of Religious Instruction which provides education upto the secondary level.

Pop. (1967 est.) 520,000. *Edu.* (1967-68) : Primary, pupils 54,028, teachers 2,425 ; Intermediate, pupils 33,217, teachers 1,987 ; Secondary (general), pupils 8,791, teachers 752 ; Teacher training, pupils 2,384, teachers 297 ; Technical and commercial, pupils 940 ; Higher students 587, teachers 122.

L

LAOS

Laos is a constitutional monarchy. The country became independent in 1949. It adopted its recent constitution in 1962. The law on free and compulsory education provides that elementary primary education shall be compulsory and free from the age of 6 ; all citizens within a radius of 5 kilometres shall be liable for the supply of materials and labour for the construction of a school ; any village with an elementary school shall be responsible for the upkeep and maintenance of the school, its furniture and the teacher's lodgings.

Primary education (6 years) normally comprises an elementary and a complementary cycle each of 3 years' duration. Most primary schools are one-teacher rural schools of 3 years. Complete primary schools (6 years) are in towns and large villages. The general secondary education course is organized in two cycles, the first of 4 or 5 years and the second of 3 years culminating in the award of the *baccalaureat*. The technical and vocational education lasts seven years, organized in two cycles of 4 and 3. Teacher training lasts two plus four years for primary school teachers, and three plus two years for secondary school teachers.

Ministry of Education is responsible for the organization of the various types and levels of education, except the Pali or Buddhist religious schools which come under the Ministry of Religious Affairs. At the provincial level, the responsibility for direction and administration of education rests with the provincial governors. The general inspectorate was set up in 1967-68 with the responsibility for general supervision.

Pop. (1968 est.) 2,825,000. *Edu.* (1967-68) : Primary, pupils 178,122, teachers 4,782 ;

Secondary general, pupils 4,882, teachers 219 ; Teacher training, pupils 2,223 ; a national university planned at Sisa Vang Vong. *Edu.* budget 1,653,145,000 kip ; 10.2% of state budget ; 1.2% of gross national product.

LEBANON

The educational system has grown in a most complex manner. Before Lebanon became independent in 1943, it had come under the influence of widely differing civilizations. This is reflected in the co-existence of three separate systems of education : (i) the Latin system which is followed by the French Catholic Université Saint-Joseph and a number of associated colleges ; (ii) the Anglo-Saxon system including the American University of Beirut and a number of Protestant colleges founded by English and American missions ; and (iii) the National Lebanese system, created in 1924, and which runs parallel to the other two systems. Some facilities are provided for transfer from one system to the other.

Schooling is compulsory between the ages of 6 and 9 years. Efforts are being continued to make free education available to all. A decree issued on 8 January 1968 defines the new levels of general education : the pre-school level of two years admitting children over the age of three ; the primary level of five years, admitting children over the age of five ; the intermediate level of four years admitting children over the age of ten ; the secondary level of three years, admitting children over the age of fourteen. The new intermediate level is considered the pivot of the whole school system. The intermediate level aims not only at democratizing education but also at recognizing the pupils' interests and aptitudes. It leads to a variety of

possibilities : the secondary school, which prepares pupils for different branches of the secondary *baccalaureat* (philosophy, classical languages, elementary mathematics, experimental science); the teacher training school, which offers a shorter 3-year course leading to the primary teaching certificate, and a longer 4-year course (70% of the holders of the primary teaching certificate are admitted to the fourth year of the course); and technical schools offering a large number of specializations.

Minister of Education is responsible for all types of education except certain specialized training institutes and establishments. Nine interdependent educational services under the Ministry are supervised by the Director-General of Education.

Pop. (1967 est.) 2,520,000. *Edu.* (1966-67) : Primary, schools 1,846, pupils 443,858 ; Higher primary, schools 487, pupils 72,659 ; Secondary, schools 222, pupils 23,822 ; Four universities in Beirut, students 20 thousand. *Edu. budget* ('68) 101,502,500 Lebanese pounds ; 15.7% of general State expenditure ; 5% of gross national product.

LIBERIA

The constitution makes the President of Liberia responsible for the conduct of education and designates the Secretary of Public Instruction as his principal adviser on education. Education is thus, centralized. No fees are charged in public schools for pre-primary and primary education.

Previously all students entering school were required, regardless of their age, to spend two or three years in pre-primary grades to learn the English alphabet, as English is the medium of instruction at all levels though it is not the mother tongue of the majority of pupils. Now pre-school education is not compulsory, and the government is decreasing its responsibility for pre-primary education. Schooling is compulsory for 10 years, from 6 to 16 years of age. The structure of the school system comprises : 2 or 3 years of pre-primary school ; 6 years of primary school (grades 1 to 6) ; 3 years of junior high school (grades 7 to 9) ; 3 years of senior high school (grades 10 to 12) ; and 4 years of college. Vocational and technical education (4 years) is provided in grades 9 to 12, and teacher training (3 years) in grades 10 to 12.

The Secretary of Public Instruction plans, directs and controls all types of educational programmes (except vocational, technical, agricultural and medical). He is assisted by the director of secondary education and a supervisor of schools in each of the political

divisions of the country.

Pop. (1967) 1,110,000. *Edu.* (1967) : Pre-school and primary ; pupils 108,030, teachers 3,195 ; Secondary general, pupils 11,551, teachers 589 ; Teacher training, pupils 551. *Edu. budget* \$ 6,717,301.

LIBYA

The United Kingdom of Libya acquired its independence in 1951, and adopted its constitution in the same year. The constitution declares that every Libyan shall have the right to education ; elementary education shall be compulsory ; elementary and primary education in public schools shall be free. The Free Education Act makes education free at all stages.

Education is compulsory between the ages 6 and 12. Pre-primary education exists on a limited scale in 2-year nursery schools. The primary education lasts for six years leading to a certificate which allows admission to the three-year preparatory or lower-secondary course. The successful completion of preparatory course leads to a 3-year general secondary course in which specialization in literature or science begins from the second year. Technical education is divided into two levels : intermediate 4-year course and advanced 3-year course.

The Minister of Education is assisted by an advisory body, the Higher Council of Education. Each of the three provinces of the kingdom has its own educational administration headed by the Commissioner of Education (*Nazir*) who is responsible to the Legislative Council. Under each commissioner there is a provincial department of education headed by a director. The provinces are responsible for establishing schools and training institutions up to the university level.

Pop. (1967 est.) 1,504,000. *Edu.* (1966-67) : Primary, schools 862, pupils 215,841, teachers 7,281 ; Preparatory, schools 125, pupils 22,038, teachers 1,382 ; Secondary general schools 21, pupils 4,808, teachers 425 ; University of Libya, students 2,500.

LUXEMBOURG

The Grand Duchy of Luxembourg is a constitutional monarchy. Its constitution dating from 1868 has been revised in 1919, 1948 and 1956. It is constitutionally provided that : the State shall ensure that every citizen receives primary education which shall be compulsory and free ; it shall establish centres of secondary education and necessary courses in higher

education ; it shall also establish free vocational courses. Nine years' schooling is compulsory for children between the ages 6 and 15 years. The normal duration of primary education is six years and that of secondary education is seven years. At the end of primary education pupils may either enter intermediate schools with three to five-year course, equivalent to a lower secondary school with a practical bias ; or enrol in a general secondary school ; or seek admission in a technical or vocational school. General secondary education is organized in two cycles : the first of 3-year course common for all pupils ; the second of 4-year course with choice between classical and modern streams. Luxembourg has a peculiar linguistic situation. In primary schools pupils have to study two modern languages besides their mother tongue ; at the secondary level they are required to study more than two modern languages (in addition to one or two classical languages in the

classical stream of general secondary school). Secondary education was completely reformed by the law of 10 May, 1968, which among many things, introduced a 7th class for guidance in secondary schools, abolished school fees, created new streams, and made it possible for the pupils to opt for the course of religious and moral instruction, or for the secular ethics course, or else for exemption from these two courses. There is no full course of study leading to a university degree. All education is the responsibility of the Ministry of Education.

Pop. (1966 census) 334,790. *Edu.* (1967-68) : Primary, pupils 36,625, teachers 1,572 ; Intermediate, pupils 814, teachers 73 ; Secondary (general), pupils 8,163, teachers 607 ; Technical and vocational, pupils 6,368, teachers 458 ; Teacher training, pupils 194, teachers 47. *Edu.* budget (1967) 1,743.6 million francs ; 14.9% of total budget of state and communes ; 6.2% of national income.

M

MADAGASCAR

Education is free and compulsory in primary schools for children between the ages of 6 and 14 years. The age-limit for admission in secondary schools is 15 years in Tananarive but has been raised by one year in the provinces. The primary school lasts six years after which pupils go to a secondary school. The secondary school course is divided into two cycles of three and four years respectively, the first leading to the '*brevet*' certificate and the second to the *baccalaureat* certificate. Technical and vocational education consists of a shorter four-year course in the district school workshops for boys and in home economics schools for girls, and a longer seven-year course in technical '*lycees*'. Teacher training also consists of two courses : a shorter course of 6 years and a longer course of 8 years.

Education is centralized. The Ministry of Cultural Affairs controls and directs pre-school, primary and general secondary education, teacher training, and also technical, vocational and higher education. The Ministry is assisted by a Director-General of Academic Services.

Pop. (1967 est.) 6,350,000. *Edu.* (1967-68) : Primary, pupils, 567,800, teachers 6,520 ; Secondary general and teacher training, pupils 24,052,

teachers 1,001 ; University of Tananarive, students 3,619. Public expenditure on education 6,580,574,000 Malagasy francs ; 16.9% of state budget.

MALAWI

Malawi is a republic which became independent in 1964, and adopted its own Constitution in 1966. The Ministry of Education is responsible for pre-school, primary, secondary, vocational and technical education. Ministry of Works and Supplies and other ministries look after the training programmes of technical and vocational education. The responsibility for higher education is vested in the University of Malawi. There is no compulsory schooling. The primary course lasts 8 years and the secondary course lasts 4 years, with an examination after two years. Technical and vocational courses last from one to four years, and higher education from three to four years. There is no provision of free education at primary and secondary level. No fees are charged for teacher training courses or technical and vocational courses. Higher education is free and some allowance is also paid to the students. With effect from January 1967, the University of Malawi assumed full control of the following institutions previously administered

by the Government: Sohe Hill College (secondary teacher training), Institute of Public Administration, Bunda College of Agriculture, and Malawi Polytechnic.

Pop. (1966 census) 4,042,412. *Edu.* (1967) : Primary, pupils 297,456, teachers 6,794 ; secondary, pupils 7,964, teachers 460 ; Technical and vocational, pupils 551, teachers 67 ; Primary teacher training, pupils 1,180, teachers 120 ; Higher, students 460. Public expenditure for education (1967) about 6,581 million Malagasy francs ; 16.9% of state budget ; 4.2% of gross domestic product.

MALAYSIA

The Federation of Malaya became independent on 31st August 1957 and was joined by the States of Sabah and Sarawak on 16 September 1963 to form the Federation of Malaysia. Before independence education was a matter reserved to the State Governments, but after independence it has become a Federal matter and the Minister of Education is answerable to Federal Parliament. In spite of the multi-racial and multilingual nature of the country, the educational policy aims to unite the racial groups and to create a common national consciousness through the use of a common language, the Malay. Education in primary and secondary national schools, that is, those in which the medium of instruction is Malay (the national language) is free.

There is no compulsory schooling, but any child may be admitted to school at the age of 6 years. The primary school lasts for six years for children from 6 to 12 years. The secondary education is divided into lower and upper secondary. The lower secondary course is of three years and is comprehensive in nature. The upper secondary level covers another two years and includes general, technical and vocational education, and leads to Malaya School Certificate Examination. After passing the examination pupils may enter post-secondary education (*i.e.*, form 6) of two years duration, or technical colleges, or the post-primary and secondary training colleges. In the sixth forms pupils take the High School Certificate Examination for entrance to the University. The Minister of Education is responsible for pre-school, primary, secondary, vocational, technical, special and higher education.

Pop. (1966 census) 9,880,134. *Edu.* (1967) : Primary, pupils 1,290,192, teachers 46,436 ; Secondary general, pupils 409,318, teachers 17,608 ; Teacher training, pupils 9,939 ; University of Malaya, students 4,560. *Edu.* budget

\$361,986,850 ; 20% of total government expenditure ; 20% of gross national product.

MALI

The country became independent in 1960. Its educational system was closely patterned on the French system, but it was radically changed with the promulgation of the Act (1962) on the organization of Public Education providing secular, free and compulsory education. Compulsory education normally lasts nine years, children being admitted between the ages of 6 and 10 years. The nine year basic school is organized in two cycles : the first cycle of 4 years and the second cycle of five years. Agricultural training is provided in all basic schools of those districts where agriculture is the predominant activity. After the successful completion of the nine-year basic school course, the pupils may be admitted in lycées providing general secondary education. It lasts for 3 years and leads to the *baccalauréat*. Technical and vocational education is available in an elementary course after the fifth year of the basic school or in a secondary course after the successful completion of nine-year basic school. The Ministry of Education is responsible for the administration and direction of education. The country is divided into inspectorial districts for the purpose of inspection and supervision.

Pop. (1967 est.) 4,740,000. *Edu.* (1967-68) : Fundamental, pupils 186,022, teachers 5,324 ; Secondary general, pupils 1,841, teachers 154 ; Teacher training, pupils 2,061. *Edu.* budget 3,760,540,000 Malian francs ; 18.1% of total State budget ; 2.9% of national income.

MALTA

The Maltese Islands, known as Malta, constitute a unified constitutional monarchy. It became a sovereign and independent State in 1964. Responsibility for all types of education, except nursery and university, is vested in the Department of Education within the Ministry of Education, Culture and Tourism. The Royal University of Malta has an autonomous status.

Education is compulsory for all children between the ages of 6 and 14 years. The normal duration of primary education is 8 years (ages 6-14). At the end of the primary course, pupils may either take up the 'extended courses' or seek admission into a secondary school through a competitive admission examination. The introduction of 'extended courses' has changed to some extent the structure of the primary school. These courses are adapted to the needs of those who fail to secure places in

secondary schools or those who wish to continue their studies after the primary school. The secondary school lasts 5 years, after which students may continue their studies in the two-year sixth form course preparatory to matriculation. The sixth form course is available in Junior Colleges. Higher education is available in the Royal University of Malta, the College of Arts, Science and Technology, Mater Admirabilis Training College for women teachers, or St. Michael's Training College for men teachers.

Pop. (1967 est.) 319,000. Edu. (1967-68): Primary, pupils 44,000, teachers 2,000; Secondary, pupils 8,090, teachers 585; Technical and Vocational, pupils 1,688, teachers 154; Teacher training, pupils 392, teachers 23; Higher, students 1,148, teachers 54. Edu. budget (1967-68) about 3,760.5 million Malian francs; 18.1% of state budget; 2.9% of national income.

MAURITANIA

Mauritania achieved its independence in 1960. Until recently the system of education followed the French pattern. After independence, the first legislative enactment relating to education (1961) provided that: the primary school shall be divided into three 2-year cycles, viz., a preparatory course, an elementary course, and a middle course; the first 4 years of primary education shall be compulsory and free, and children may be admitted to the primary school at not earlier than 6 years of age, and not later than 9; teaching in the primary schools shall be given in both Arabic and French, and both the languages shall be compulsory for all students. The 6-year primary course leads to the primary school certificate. Secondary education consists of two cycles: the first of 4 years leading to school leaving certificate of first cycle, and the second of 3 years leading to *baccalaureat*. Arabization of programmes of study has been progressively introduced. Arabic institutions have been opened and proper emphasis has been laid on the traditional Mauritanian culture and Arabic language in the education of young Mauritians. Mauritania has a centralized system of education under the Department of Education and Youth. The responsibility for all types of education rests with the Director of Education.

Pop. (1968 est.) 1.5 million. Edu. (1966-67): Primary, schools 595, pupils 24,000; Secondary, schools 8, pupils 2,640.

MEXICO

Mexico is a federal republic consisting of 29 States, 2 territories and a federal district.

The constitution (1917) states: 'The education imparted by the State—the Federation, States or municipalities—shall tend towards the harmonious development of all the human faculties, and at the same time foster patriotism and the sense of international solidarity based on independence and justice.' It also stipulates that education shall be free, secular and compulsory, the period of compulsion being up to the age of 15. The constitution introduces the prohibition against the participation of religious bodies and commercial companies in the formal educative process (like establishing primary or secondary schools).

The pre-primary schools offer 3-year of education for children under 7 years of age, and are maintained by public, private and commercial agencies. Primary education is compulsory for all children who must enter school at the age of six. The primary schools offer a 6-year course. Many rural schools are unable to offer the full programme, a circumstance which has helped the setting up of *internados*, primary urban schools with hostel arrangements for students from rural areas. The secondary education consists of two cycles. The lower cycle lasting 3 years may be of a general or specialized type. The 'general' or 'basic' lower secondary education is given in *escuela secundaria*, and leads to the various types of upper secondary education. *Escuela secundaria tecnica* is a lower technical secondary school laying particular stress on laboratory and workshop activities. *Escuela industrial* and *escuela comercial* are lower secondary schools of 'specialized' character, and do not lead on to other stages of education. The upper cycle of secondary education may likewise be of a general or specialized type. The 'general' upper secondary education lasts 2 years and is available in *escuela preparatoria*, preparing pupils for access to higher education and leading to the award of *bachillerato*. The 'specialized' upper secondary schools offer 3-year courses for the purpose of training middle-level technicians and managerial staff. They also include the normal school programme which is terminal for primary teachers. Those desiring an advanced degree may enter higher schools of education at university level. Higher education is available in university institutions, higher technical and vocational institutions and teacher training institutions. University education is provided in over 50 institutions, the most important being the National Autonomous University of Mexico offering the largest number of academic and professional courses and

catering for over half the university students in Mexico.

The Ministry of Education, through the 34 directors-general and departmental heads, provides technical direction to the various primary, secondary, and higher education establishments besides directly controlling the schools in the federal districts and territories. The 29 federated States administer their own education services and are principally concerned with maintaining primary, secondary and teacher training institutions. The educational activities of municipalities are confined to primary education. It is interesting to note that the Secretary of Public Education (Minister of Education) has extensive authority to introduce and enforce substantial changes in national educational policy and practice through administrative decisions without the approval of the Congress.

Pop. (1968 est.) 47,267,000. *Edu.* (1968) : Primary, pupils 8,159,403, teachers 174,585 ; Lower secondary, pupils 801,473, teachers 55,399 ; Technical, industrial, vocational, etc., pupils 154,117, teachers 12,012 ; Teacher training, pupils 44,532, teachers 5,012 ; Higher, students 178,188, teachers 19,218. Budget of the Ministry of Education (1968) 6,482 million pesos.

MONGOLIAN PEOPLES' REPUBLIC

The goal of Mongolian education is 'to bring up a younger generation capable of combining intellectual and physical work and deeply respecting the principles of a socialist society'. Education is entirely secular. Schooling is compulsory between the ages of 8 and 15 years, and is free at all levels. The Minister of Education has a general control over the whole system of education. In each of the 18 provinces (*aimak*), there is a department of education responsible to the Provincial government. The State maintains nursery schools for children of 3 to 7 years of age, whose parents work or study. At the age of 8 children enter the primary schools. The seven-year primary schools are now being converted to eight-year general education schools with polytechnical courses for children between 8 and 17 years of age. Such a school combines both primary and secondary education. Secondary education is also available at post-primary schools,

secondary special and vocational institutions, and general polytechnical schools. The latter admits pupils at the age of 8 and its course lasts for eleven years. There are several institutes of higher education, including the Ulan Bator State University, which admit students from secondary schools, and in particular from the eleven-year general polytechnical schools, the evening courses, and the specialized secondary educational institutions.

Pop. (1967 est.) 1,156,200. *Edu.* (1967) : 462 schools with 165,000 students.

MOROCCO

Morocco is a constitutional monarchy. It became independent in 1956, and adopted its own constitution in 1962. The Ministry of Education and Fine Arts is responsible for all types of education, except pre-school education. Pre-school education entirely depends on private enterprise under the supervision of the Ministry of Education and Fine Arts and the Ministry of Health. Education is compulsory between the ages of 7 and 13, depending on the availability of places. The primary schools last 5 years. The medium of instruction is Arabic. Secondary education is provided in the *lycees* and *colleges*, and is composed of two cycles of 3 years each. The first cycle consists of either a lower general secondary course, or a terminal course of general, industrial or commercial nature for those who are over-aged and will not continue studies beyond the lower cycle. The second cycle of secondary education leads to the *baccalaureat*. There are four universities, including the American University opened in Tangier in 1968. The inspection of primary schools is carried out by provincial inspectorates, while that of secondary education is carried out by the Research and Education Division of the Directorate of School Activities in respect of academic matters and by the General Administrative Inspectorate in respect of administrative matters.

Pop. (1967 est.) 14,140,000. *Edu.* (1967-68) : Primary, pupils 1,031,588, teachers 29,229 ; Secondary (general), pupils 222,166, teachers 9,267 ; Secondary (technical), pupils 14,449, teachers 959 ; Higher, students 10,128, teachers 498. Budget of the Ministry of Education and Fine Arts (1967) about 39 million dirhams.

N

NEPAL

The responsibility for education vests with the Ministry of Education. The Director of Education directly administers and supervises primary and secondary education. The country is divided into 14 zones, each under the charge of an Inspector of Schools. The 14 zones are further subdivided into 75 districts, each having a district inspector to administer and supervise the primary schools.

The constitution recognizes the right of every child to free and compulsory primary education, but no definite date has been fixed to achieve this goal. Bold measures have, however, been taken towards the provision of free and compulsory primary education in a large number of villages and towns. There are three main types of primary schools: English, Sanskrit and National. The English system offers a 5-year course of primary education followed by a 5-year course of secondary education, which leads to the award of school leaving certificate. The Sanskrit system consists of 6-year primary education and 3-year secondary education leading to the award of *Purva Madhyama* certificate, which gives access to Sanskrit Institutions of higher learning. Eight years of schooling in English or Sanskrit system is the minimum qualification for entering a primary teacher training school. Technical education offering one or two-year course is available in sub-collegiate-level technical training centres. There are 35 arts and science colleges. The Tribhuvan University in Kathmandu, being the only university in the country, enjoys a privileged position and controls the academic affairs of all the colleges of the country. Before the establishment of the Tribhuvan University in 1959, all the colleges, except the College of Education and the Sanskrit Colleges, were affiliated to the Patna University in India. In the same way, the Sanskrit Colleges were affiliated to the Sanskrit University in Benaras.

Pop. (1968 est.) 10.5 million. *Edu.* (1966-67): Primary, schools 6319, pupils 394,700, teachers 13,960; Secondary (general), schools 741, pupils 69,100, teachers 3,500; Higher, colleges 35, students 10,230, teachers 730. Tribhuvan University has 650 students. Government expenditure on education (1967-68) 38.1 million rupees.

NETHERLANDS

The constitution and the various education Acts emphasize the safeguarding of the freedom of parents to choose an education for their children in accordance with their own way of life and beliefs. The public and private schools are placed on the same financial footing. Private schools, whether denominational or non-denominational, receive 100% government subsidy, and enjoy freedom in the choice of educational means (text-books, methods of teaching, etc.) and in the appointment of teachers, subject to the fulfilment of conditions identical with those set for public education. Even in cases of doubt whether the curriculum of a private school meets the requirements of progressive education, it is not the Minister of Education but the Educational Council, an independent body, which gives the ruling. This freedom of education results in a wide variety of types of school and teaching methods.

Pre-primary education for children between the ages of 4 and 7 years is given mostly in private schools. Eight years of schooling are compulsory for children between the ages of 6 and 15. Ordinary primary education (*Gewoon Lager Onderwijs*) is designed to impart a basic education in the form of a 6-year course. The curriculum is drafted by the headmaster and approved by the burgomaster and aldermen in consultation with the inspector of education. Special primary education is provided for children who are mentally or physically unfit to attend ordinary primary schools.

A new secondary school system has been introduced by the enforcement of Post-Primary Education Act of 14 February, 1963, on 1 August 1968. The new Act makes it easier for pupils to switch from one kind of school to another, either horizontally or vertically, and allows considerable latitude regarding the arrangement of the curriculum and the methods of teaching according to the needs of the pupils. Another important feature is the introduction of a 'transitional year' (or 'bridge year'), as the first year of each type of secondary school, designed to assist the pupils to adapt themselves to the new school, to judge their suitability for the school, to help them in the choice of their future education, and to facilitate the transition of pupils between schools if need be. Secondary education is divided into: pre-university education; general post-primary education;

vocational training; and other forms of post-primary education. Pre-university education (v.w.o.) lasts 6 years, and is intended for pupils who wish to pursue higher education, and is provided in the *gymnasium* and the *atheneum*. The *gymnasium* (classical grammar school) consists of division A with the emphasis on the classical languages, and division B with the emphasis on mathematics and science. The *atheneum* (modern grammar school) has division A with emphasis on the economic and social subjects and division B with emphasis on mathematics and science. The *lyceum* is a combination of these two types of schools. The general post-primary education is divided into higher general post-primary education (h.a.v.o.) offering 5-year courses; intermediate general post-primary education (m.a.v.o.) offering 4-year courses and preparing pupils for secondary vocational training; and elementary general post-primary education (l.a.v.o.) provided in the first and second years at elementary vocational training schools, helps in the transition from general education to actual vocational training. Vocational training is provided at technical schools and colleges, home-economics schools and colleges, agricultural schools and colleges, teacher training colleges, etc. The teacher training is divided into 3 phases: the first phase of 2 years is a continuation of general education; the second phase of 2 years is entirely devoted to professional training, leading to a primary teacher certificate. The third phase of one year provides advanced training for a headship at an ordinary primary school. Universities prepare pupils for the secondary school teachers' certificate. Higher education is provided in 8 universities (including 3 technical), technical colleges, colleges of higher professional training, nautical colleges and colleges of arts. University education dates back to the 16th century when the University of Leyden (1575) was founded.

The Ministry of Education and Science is responsible for the entire field of educational legislation, with the exception of agricultural education falling under the Ministry of Agriculture and Fisheries. The 1969 law on compulsory education has transferred the responsibility of inspection of compulsory schooling from the school inspectorate to the town councils. The supervision of post-primary education is the responsibility of the Minister, exercised under his direction by the Inspector-General of Education.

Pop. (1968) 12,660,918. Edu. (1967-68): Primary, schools 8,056, pupils 1,427,966,

teachers 46,008; Secondary, schools 2,184, pupils 572,611; teachers 29,788; Technical and vocational (1966-67), pupils 594,944; Teacher training (1966-67), pupils 65,021; Higher (1966-67), students 70,840. Budget of the Ministry of Education and Science (1968) 4,763 million guilders; 28% of general State expenditure; 6% of national income.

NEW ZEALAND

New Zealand does not have a constitution. Its education system was established and is maintained under the authority of parliamentary legislation. The original Education Act 1877 federalised and unified administration of the education system. Although this Act has since been revised and renewed, the latest being the Education Act 1964, the education policy of the country still broadly follows the pattern laid down by the 1877 Act, which provided that education should be compulsory and in government schools, free and secular.

There is compulsory education from the ages of 6 to 15, although in practice children may enter primary school (State or registered private) at five, and most do so. Voluntary bodies provide facilities for pre-primary education in a free kindergarten or a play centre for children between the ages of 3 and 5; the salaries of kindergarten teachers and subsidies for equipment and building are paid by the government. Primary education lasts 8 years. Normally it takes 6 years for the children to cover the two infant classes and standards 1, 2, 3 and 4. The remaining 2 years of the primary course is taken either in Forms I and II at the same primary school or at an intermediate school, if conveniently situated. The intermediate school is a centrally situated school which pupils enter from the surrounding primary schools (called the 'contributing schools' for the intermediate school) after standard 4. Owing to the availability of large students of Forms I and II, the intermediate school has the advantage of ability grouping, specialist teachers, and a good range of optional subjects. On completing the course of Form II or on reaching the age of 14, a pupil becomes entitled to free secondary education until he attains the age of 19 years. Since all children are required to attend school until they reach the age of 15 years, some period of secondary education is now compulsory for nearly all children, and most children stay at least for 2 years. Secondary school course normally lasts 4 years, with 2-year syllabus based on a common core followed by a degree

of specialization. District high schools are State primary schools with a secondary 'top'. Free textbooks are supplied to all primary and secondary pupils in both State and private schools. Maori children may attend any State primary school, State secondary school or district high school without any fees. Schools to meet special needs of Maori children have been provided by the Department of Education in some areas, the courses being of a practical nature. Since 1922 correspondence courses have been conducted for the education of children in very remote areas like the Pacific territories, and of those unable to attend school on account of lengthy illness or physical disability. A corporate school spirit is developed through badge and uniform, daily radio lessons, the club activities, school magazine, periodical exhibitions of work, and teachers visiting pupils in their homes. The School Certificate Examination, the accepted test of a completed secondary education for pupils not going on to university, is taken at the end of the third or fourth year at a secondary school. Higher School Certificates are awarded after a five year course to pupils who have been awarded a School Certificate and who have satisfactorily completed an advanced course of 2 years. The system of higher education has evolved in recent years from a federal university with constituent colleges to a system of 6 separate universities and a university college of agriculture.

The Ministry of Education is responsible for all types of education through its Department of Education. The administration of primary schools and the teachers' colleges is in the hands of 10 regional education boards. Secondary schools and technical schools are administered by boards of governors or managers.

Pop. (1967 census) 2,725,644. *Edu.* (1967): Primary, schools 2,904, pupils 500,898, teachers 17,983; Secondary, schools 381, pupils 168,534, teachers 8,356; technical, pupils 87,374, teachers 533; Teacher training, pupils 6,155; Higher, students 26,331, teachers 1,605. Expenditure in the education budget (1967) \$ NZ 174.5 million; 12.7% of State budget; 5.1% of national income.

NICARAGUA

The constitution (1950) provides that: primary education shall be compulsory, and officially imparted education shall be secular and at the cost of the State; all educational establishments shall make due provision for the

moral education of the children; primary, secondary and vocational education shall be subject to the technical supervision of the State. All the educational institutions, except the National University which holds an autonomous status, are directed, administered and supervised by the Ministry of Education. The major characteristic of education is its centralization.

There are a small number of kindergartens for children 4 to 6 years old, which are privately managed. Primary education is provided in three types of schools: elementary (the first 2-year course), graded (the first 4-year course), and higher (complete 6-year course). Most of the rural schools are of the first category. A pupil can enter secondary school after completing the full six years of primary education. Secondary education provides a 5-year course leading to the award of *baccalaureat*. The teacher training schools also offer a 5-year course, after the primary, leading to the primary school teacher's diploma. The commercial and vocational institutes offer a 4 or 5-year course. The *baccalaureat* is a pre-requisite for university education. The National University at Leon controls all institutes of higher education.

Pop. (1967 est.) 1,783,000. *Edu.* (1963-64): Primary, schools 2,235, pupils 158,489, teachers 4,186; Secondary (general, technical and commercial), schools 118, pupils 19,473, teachers 1,416.

NIGER

Niger is a republic which acquired its independence in 1960, and adopted its own constitution in the same year. The Ministry of Education is responsible for pre-school, primary, secondary and technical education. Education is centralized. Schooling is free, and compulsory for children from 7 to 14 years of age, depending upon the availability of places. There are various factors affecting the provision of education, viz., very dispersed population, low income per capita, many ethnic groups and the nomadic character of many people. Many languages are spoken but none, except Hausa, has a script. French, therefore, continues to be the medium of instruction. Primary education covers a 6-year course. Secondary education lasts 7 years, and follows the French system leading to the award of *baccalaureat*. Other forms of education at the secondary level include technical, vocational, agricultural and health education, and teacher training. The teacher training covers a seven-year course after the primary schooling. In the absence of any institution for higher education, students go abroad or to other

African countries for pursuing higher studies.

Pop. (1968) 3,629,228. *Edu.* (1968): Primary, pupils 77,261, teachers 1,692; Secondary, pupils 4,360, teachers 260; Technical, pupils 156, teachers 19. *Edu. budget* (1968) about 1,378.4 million CFA francs; 11.3% of State budget; 2.3% of estimated national income.

NIGERIA

Nigeria is a federal republic which became independent in 1960. The Federation is composed of 12 States, each State being responsible for its own education. The Federal Ministry of Education provides the meeting ground for the harmonization of the educational policies of the twelve ministries of education through the Joint Consultative Committee on Education. It also supervises the development and administration of all forms of education within the Federal Territory of Lagos. In all States except the Federal Territory of Lagos primary education covers a period of 6 years. Free and universal education is provided in the territory of Lagos. Secondary education lasts for 6 years. There is a general tendency towards dividing secondary school into junior and senior levels. The junior level offers a wide range of subjects and aims at producing pupils with a versatile technical training. The senior high schools offer the traditional classical education, and also specialized courses in science, technology, agriculture, home economics, vocational arts, and industrial and commercial subjects. Technical and vocational education is given in trade centres, senior secondary schools and post-secondary technical colleges. There are five universities in Nigeria; the sixth is planned for Port Harcourt.

Pop. (1967 est.) 61,450,000. *Edu.* (1966): Primary, pupils 3,025,981, teachers 91,049; Secondary, pupils 211,304, teachers 11,644; Technical and vocational, pupils 15,059, teachers 789; Teacher training, pupils 30,493, teachers 1,837; Higher, students 9,170, teachers 1,338. Expenditure on education (1965-66) 15.2% of national income.

NORWAY

As no special reference to education is included in the Norwegian Constitution of 1814, the education system is regulated by a series of legal enactments. Generally speaking, each type of school and each institution of higher education is covered by special legislation. The school system is almost entirely a public responsibility; it is in general supported either by the local authority (municipality), the regional authority (county) or by State. It is also

possible to run private schools, but the number of these has steadily dwindled.

Education is free at all levels. Children between the ages of 3 and 6 are accepted by the kindergartens, which are mostly managed by organizations that may or may not receive assistance from the local authorities. Compulsory elementary education was first introduced in 1739, and compulsory school attendance had been 7 years since 1889. Norway is continuously adapting its educational system to changing conditions and the traditional 7-year primary school has been gradually replaced during the last decade by a 9-year comprehensive school, corresponding to 9-year compulsory education from the age of 7 to the age of 16 years (except in some municipalities where it is still 7 years of compulsory education). The 9-year school is organized either as a 6-year elementary school (*barneskole*) with a 3-year secondary stage (*ungdomsskole*), or as a 7-year elementary school with a 2-year secondary stage. Earlier, *realskole* (lower stage of secondary grammar school) was a 3-year school in urban areas and a 2-year school in rural areas, while *gymnas* (upper stage of secondary grammar school) was a 5-year school in urban areas and a 4-year school in rural areas. But the extension of compulsory education from 7 to 9 years involved the gradual amalgamation of *realskole* into the upper stage of the 9-year school, while the *gymnas* became a 3-year course leading to the matriculation examination, which is the basic requirement for admission to the university and university colleges. Specialization in the *gymnas* takes place in the form of a choice from five courses of study ('lines'): the Latin line, the Science line, the English line, Norwegian line, and the Biology line; most of the pupils either select Science line or English line. The Continuation School is a post-elementary school providing general education with some instruction in the practical subjects, the courses lasting from 12 weeks to 2 years. The Folk High Schools, originated in the 1860's, provide further general education for young adults who have completed their seventeenth year. Commerce education is offered by vocational schools for commerce and clerical work and by commercial *gymnas*. Vocational education is provided through the comprehensive basic training in agriculture, industry and handicrafts. Teachers' training colleges provide 2-year course for the matriculates or 4-year course for those who have reached the age of 17 and have passed the entrance examination of the college. These courses lead to the award of teachers' certificate

for teaching in the first 6 or 7 years of elementary education. One year training in the university is required for teachers at the upper stage of 9-year school. The qualification for teaching in the *gymnas* is the *lektor* examination after a complete course of study at a University. Higher education is provided in the university of Oslo, the University of Bergen, 6 State colleges and the Independent Theological College.

The Ministry of Church and Education is responsible for most types of education, with the exception of schools of agriculture, forestry, dairying, and schools for fishermen and for nurses, which are under other Ministries. The Ministry of Church and Education consists of 8 departments including Departments of General Education, Vocational Education, Adult Education and Church Department. There are a large

number of expert advisory councils to advise the Ministry. Generally speaking, compulsory schooling is administered by the local municipal authority, secondary education by the regional county authority, while the State is responsible for the management of universities and colleges.

Pop. (1967 est.) 3,785,000. *Edu.* (1967-68): Primary (comprehensive and continuation), pupils 507,473, teachers 28,138; Secondary grammar, pupils 98,300, teachers 7,447; Folk high school, pupils 6,119, teachers 935; Teacher training, pupils 7,977, teachers 871; Technical and vocational, pupils 31,908, teachers 4,125; Higher, students 22,748. *Edu. budget* of Ministry of Education 1,957 million Norwegian crowns; 13.9% of State budget; 6.4% of gross national product.

P

PAKISTAN

Pakistan became independent in 1947, and its constitution was promulgated in 1962. Education is a provincial subject; in other words, the constitutional responsibility for maintenance and development of educational facilities rests with the two provinces—East Pakistan and West Pakistan. The Education Departments in the two provinces defray this responsibility through several directorates of general and technical education and boards. The role of the Central Government (through the Ministry of Education) is to co-ordinate education policies, and to stimulate planning for educational development on a national basis. The Ministry of Education is assisted in this task by the Inter-University Board and the Council of Technical Education. Islamabad University and a number of primary and secondary schools in the Centrally administered areas of Dacca, Islamabad, and Rawalpindi have been placed under the direct control of the Central Ministry of Education.

Universal and free primary education is a constitutional right. Education is not yet compulsory. Compulsory primary education is to be introduced by 1975. The compulsion will at first be for the first five years of education, and then extended to eight years. Primary education lasts five years from classes I to V for children normally between 5 and 10 years of age. No fee is charged at primary schools run

by the government or local bodies. Most primary schools are run by the government with over 90% of the total enrolment. Secondary education is provided in the next 5-year period, sometimes sub-divided into middle school (classes VI to VIII) and high school (classes IX to X) education. About 20% of the children attending primary schools go on to the secondary stage. The secondary schools generally conform to an established pattern providing instructions roughly upto the same level throughout the country. There are, however, some variations in types like: Public schools, *i.e.*, residential schools run on the lines of English schools of this kind; Comprehensive high schools with limited residential facilities where students would be selected on the basis of ability, and staff members would be of higher qualification and status; Vocational schools offering training for some vocation; Pilot schools where new reformed curriculum has been put into effect for experimentation. The curriculum of secondary education was revised in 1960 with a view to relating it rather to practical requirements on the one hand, and moral and spiritual needs on the other. Science teaching has been made compulsory throughout the period, and new courses, such as agriculture, commerce, industrial art and other pre-vocational disciplines, have been introduced. The stage designated in most other countries as higher secondary has been known here as 'intermediate'

covering a 2-year course (classes XI and XII). It is treated as intermediate between secondary and university education, and assumes the role of a starting point for higher education (rather than the concluding part of a secondary education).

Higher education is provided in Intermediate Colleges (sometimes known as Higher Secondary Schools); Degree Colleges which are affiliated to universities and sometimes have intermediate sections; and Universities. Starting with 3 universities at the time of independence, the country now has 12 universities and a thirteenth is soon to open. In order of establishment they are: the Universities of Punjab at Lahore (1882), Dacca (1921), Sind at Hyderabad (1947), Peshawar (1950), Karachi (1951), and Rajshahi (1953); the Agricultural Universities at Mymensingh and Lyallpur (both 1961); and Engineering and Technological Universities at Dacca and Lahore (both 1961), Islamabad (1966) and Chittagong (1966). The thirteenth is being set up in Jahangirnagar in Dacca. All the universities (except that of Islamabad) are affiliating and teaching institutions.

In East Pakistan there are educational institutions called *madrassahs* which offer education in Arabic and Islamic subjects. The Madrassah Education Board controls them and conducts their examination. In West Pakistan, some similar institutions at the primary level are called *maktabs*, and the centres of higher learning are called *darul uloom*. These institutions serve to produce well-educated religious instructors, *khatibs* and *imams*. Promotion of national languages (Urdu and Bengali) with a view to their adoption as media of instruction at all levels has been accepted as a government policy. Primary and secondary education is already imparted in these languages. At the higher level, the Karachi and Rajshahi Universities have changed to Urdu and Bengali respectively, and some other universities are adopting the same policy.

The Commission on National Education appointed in December 1958 subjected the whole educational system to a critical scrutiny and submitted a comprehensive report in August 1959. Among the recommendations were: a reorientation of the curricula at all levels; reorganization at the secondary and under-graduate levels; making primary education free and compulsory up to first 5 years of education and then gradually to 8 years; and the development of national languages. A Commission on Students' Problems and Welfare set up in 1964, in addition to studying specific

claims of student bodies, went into all the major aspects of education.

Pop. (1967 est.) 107,258,000. *Edu.* (1966-67): Primary, pupils 7,050,741, teachers 172,953; Secondary (general), pupils 2,585,986, teachers 127,197; Secondary (vocational), pupils 19,070, teachers 1,170; Intermediate colleges, students 46,069, teachers 2,117; Degree colleges, students 233,601, teachers 7,802; Teacher training, students 18,971, teachers 1,363; Universities, students 24,409, teachers 2,199. Government expenditure on education (1967-68) 884.5 million rupees; 5.5% of total government expenditure.

PANAMA

The constitution (1946) decrees that: pre-primary, primary, secondary and university education shall be free of charge and the State shall provide kindergarten and primary school pupils with all school supplies necessary for their training; the State shall encourage the establishment of technical, industrial, professional, agricultural and commercial schools; guidance service shall be provided for students from the primary level up. The centralized educational system is administered by the Minister of Education with the advice of the National Council of Education. The Ministry of Education is represented on the municipal and district boards by inspectors from the provincial educational inspectorates. There are a small number of kindergartens for children of 5 and 6 years old. The teaching of reading and writing or any type of formal training is forbidden by law in the kindergartens. Primary education is compulsory for all children aged from 7 to 15 years. The primary school provides 6 years of education divided into three phases of two years each. The general secondary school offers 6 years of study divided into 2 cycles of 3 years each. The first cycle is of a general and exploratory nature, and the second cycle offers a specialized academic, technical or vocational studies. The academic second cycle leads to the award of *bachillerato* which gives access to the university education. The National University of Panama consisting of 9 faculties is the central institution for the provision of higher education in the country. It has an autonomous status. There is also a private university named Catholic University of Santa Maria la Antigua.

Pop. (1967 est.) 1,329,000. *Edu.* (1967): Enrolment—Primary 215,778; Secondary (academic, technical and vocational) 62,307; Higher 9,333. *Edu. budget* (1967) 26,609,765 balboas;

28.2% of State budget ; 4.4% of gross national product.

PARAGUAY

Primary education has been compulsory since the constitution of 1870. The present constitution (1940) reiterates this obligation, and further provides that education shall be free, and the State shall encourage secondary, vocational and university education. The education system is administered by the Minister of Education with the advice of the National Council of Education, and is highly centralized. Pre-primary education is not very much developed and is wholly privately managed. School attendance is compulsory for children from 7 to 14 years of age. There are three types of primary schools depending upon the length of the course provided : the lower (the first 3-year course), the intermediate (the first 5-year course), and the higher (complete 6-year course). Secondary education is mainly provided in *collegio* having a 6-year course organized in two cycles of three years each. The successful completion of the 6-year secondary programme leads to the award of *bachillerato* or the secondary school certificate, which grants admission to higher education. At the secondary level provision is also made for the 3 year technical vocational schools, the 6-year commercial schools and two types of teacher training schools—one with a 5-year programme for primary school teachers, and the other with a 8-year programme for secondary school teachers. There are two universities—the National University of Asuncion and the private Catholic University.

Pop. (1967 est.) 2,161,000. *Edu.* (1965) : Primary, schools 2,632, pupils 365,000 ; Secondary (academic, technical and vocational), schools 244, pupils 33,252 ; Higher (2 universities), students 5,560, *Edu. expenditure* (1965) 802,584,000 guaranics.

PERU

In the constitution of 1933, the principal educational provisions are : primary education is compulsory and free ; a school shall be maintained in any locality with 30 or more pupils ; the State shall encourage secondary and higher education ; the State is responsible for the technical direction of education. The law of 1958 institutes free secondary schooling, and the law of 1961 gives autonomous status to the universities. The country has a centralized national system of education headed by the Minister of Public Education. The National Council on Education presided by the Minister

is an important advisory body which formulates national education policies. Directly under the Minister are three regional inspectors in charge of the three geographical zones into which the country is divided. The multiracial and multilingual character of the people have some effect on education, as also the wide difference between urban and rural facilities. Kindergartens and nursery schools are publicly and privately maintained, and accept children from the age of 4. Primary education is free and compulsory for children between the ages 6 and 12. The primary schools are classified into two categories : the 'first-grade' or incomplete primary schools with a course of 2, 3 or 4 years ; and the 'second-grade' or complete primary schools with a 6-year course leading to the primary certificate. The incomplete primary schools are mostly in the rural areas. General secondary education lasts 5 years and consists of two cycles : the first cycle of 3 years is common to all pupils, but the second cycle of 2 years provides specialization in one of the streams—arts, science, commerce and administration. The successful completion of the second cycle leads to the certificate of complete secondary education which gives access to all institutions of higher education. Technical and vocational education is provided in industrial, commercial or agricultural institutes, and pupils are admitted on the basis of primary certificate. Technical education, like general secondary education, covers a course of 5 years divided into two cycles of 3 and 2 years respectively. Higher education is available in universities, university type institutions and various institutions of specialized professional training. Most teachers for secondary and higher education receive their training in the universities in the faculties of education. The National Institute of Pedagogy trains teachers for both primary and secondary schools. There are 13 State universities and 7 private universities.

Pop. (1967 est.) 12,385,000. *Edu.* (1967) : Enrolment, 2,412,000 in primary schools ; 402,300 in secondary schools ; 95,700 in technical education ; 23,600 in training institutes, schools or faculties of education ; 63,700 in universities. Public expenditure on education (1963) 2,680 million sol ; 4.9% of national income.

PHILIPPINES

The Board of National Education formulates and directs general educational policies. The Secretary of Education is responsible for the various types of education from pre-school to

higher education. The Department of Education consists of the Bureau of Public Schools and the Bureau of Private Schools. Schooling is compulsory, at present, upto the 6th grade, the age limit being 12 years. Under the Revised Philippine Educational Programme (1957) elementary education shall be made ultimately compulsory for all the children between the ages of 7 and 13. Primary schools last 6 years. The secondary schools are organized on a 2+2 plan. The first 2 years of secondary education follow a common general curriculum, and the last 2 years offer a diversified curriculum (general, technical and vocational) stressing specialization. The *Barrio* High School movement, started on an experimental basis in 1964, is a significant landmark in the history of secondary education. It caters to the need of four-fifths of the children in the 13—17 years age-group who can continue schooling while at the same time help their families in the farms or in any other type of occupation. The teacher training is a four-year post-secondary programme. Higher education is provided in both public and private institutions, including the two State supported universities—University of the Philippines and the Mindanao State University, several private universities and a large number of colleges.

Pop. (1968 est.) 35,905,000. *Edu.* (1967-68) : Primary, pupils 6,682,281, teachers 224,902 ; Secondary (general), pupils 1,282,488, teachers 40,072 ; Technical and vocational (all levels), pupils 96,890, teachers 4,875 ; Higher, students 541,398, teachers 21,776. Educational expenditure (1966-67) about 646 million pesos ; 25.7% of State budget ; 3.2% of gross national product.

POLAND

Schools of all types and at all levels are organized and financed by the State, with the exception of a few nursery schools and some establishments, which are run by social organizations and private associations. Education is secular and free at all levels. In Polish school system a student can pass from any primary school to any secondary school, and from any secondary school to the college or university level, as well as, from any general secondary school to an advanced school of technology, and from any vocational school to a university. In recent years the most far-reaching reform effected was the introduction in 1966 of the eight-year compulsory primary education to replace the seven-year schooling. The second stage of reform commenced from 1967 with the recasting of four-year secondary school curricula

in order to allow more attention to polytechnical subjects and the mathematical and natural sciences.

Pre-primary education is given in kindergartens and nursery schools for children between the ages of 3 and 6. Compulsory 8-year primary education covers all from the ages of 7 to 15. In the event of failure to complete primary education by the age of 15, the compulsory school age limit is raised to 17. Of the number entering secondary schools, about 80 per cent pass into vocational and technical schools, while the remainder go into general secondary schools. Secondary schools leading to matriculation examination include 4-year general secondary schools (*lycee*) and 4 or 5-year technological vocational schools. A general secondary school together with 8-year primary school makes up a uniform, homogeneous 12-year general education school programme. Secondary vocational schools not leading to matriculation examination offer 2 or 3-year courses ; they train qualified personnel for industry, agriculture and service jobs. The total number of trades and specializations taught in these vocational schools exceeds 450. Besides, there are vocational technological schools for those who have passed the matriculation examination. These schools train for highly specialized trades in the field of electronics, nuclear physics, isotope technology, computing machines, etc. The 2-year Teachers' Courses which prepare matriculates for the work of primary-school teachers, can be placed in the same category.

The schools for working people are organized on an extensive scale. The types of schools available for the working people are : (a) general secondary schools, providing evening and correspondence courses ; (b) vocational evening schools and correspondence courses lasting 2 to 5 years ; (c) university-level schools providing evening, correspondence or extramural courses.

Universities and other institutions of higher learning offer courses which last from 4 to 6 years. Entrance examinations, sometimes competitive in character, precede the admission of candidates who must have certificates of matriculation. Students are required to know one or two modern foreign languages. There are 8 universities, 17 technical universities and colleges, 7 agricultural schools, 7 schools of economics, 5 teacher training colleges, 10 medical schools, 16 music, art and theatre academies, 4 schools of physical education and 2 theological academies.

The primary and secondary schools, as well

as university-level teacher training colleges, come under the Ministry of Education, while the universities, technical and agricultural colleges and schools of economics come under the Ministry of Higher Education. Medical schools are the responsibility of the Ministry of Health and Social Welfare, and fine arts colleges are controlled by the Ministry of Culture and Art. At the regional level, schools are administered by the local authorities, i.e., by the *curatoria* at the departmental level, and by the *inspectorates* at the district level.

Pop. (1967 est.) 31,944,000. *Edu.* (1967-68) : Primary, pupils 5,706,300, teachers 201,370 ; Secondary (general), pupils 306,135, teachers 15,044 ; Vocational, pupils 1,500,473 ; Higher, students 288,788, teachers 25,565. Budget for public and higher education (1968) 29,073 million zlotys.

PORTUGAL

The constitution (1933) provides that : the State shall officially maintain primary, complementary, secondary and higher schools, and institutes of advanced education ; elementary primary instruction is obligatory and may be given at home or in private or State schools ; the aim of State education is not merely the development of physique and of the intellectual faculties, but the training of character, adequate preparation for a profession, and the inculcation of all moral and civic virtues, in accordance with Portugal's traditional principles of Christian doctrine and ethics.

Pre-primary education is mostly privately managed though some pre-primary establishments are provided grants from the government. Education is compulsory and free for children between the ages of 6 and 11, the upper age limit is to be extended to 13 years. Primary education lasts 4 years and consists of two cycles : the first cycle of 3 years provides lower primary education leading to first cycle examination which gives access to the fourth class. The fourth year is a preparation for entrance to the secondary school and concludes with a final primary school examination, known as

second cycle examination. General secondary education covers a 7-year course, divided into three cycles on a 2+3+2 plan. The first two cycles provide a general course common to all pupils. The third cycle consists of diversified streams designed to provide specialized knowledge and to prepare the pupils for entrance to higher education. General secondary schools (*liceu*) are of two types : the national *liceus* which are supported by the State and covers the complete secondary course of three cycles (sometimes only the first two cycles) ; the municipal *liceus* which are supported by the municipalities and cover only the first cycle. There are also technical and vocational schools of a post-primary level, consisting of a first cycle of 2-year common preparatory course, followed by various types of vocational education—commercial, industrial, agricultural and pertaining to fine arts—lasting 3 to 5 years. After completing the second cycle of general secondary education, students can enter the intermediate-level teacher training institutes. Higher education is provided in the four State universities and other specialized institutions. The first Portuguese university was established in Lisbon in 1290. The Technical University was founded in Lisbon in 1930.

The Ministry of National Education is responsible for central administration and policy-making in the field of education. The National Education Board is the top advisory body which assists the Ministry. The Higher Institute of Culture is another important organ which is responsible for scientific research, the training of specialists and the development of culture. The Ministry of Health and Welfare is responsible for the education of socially underprivileged children and the physically and mentally handicapped children.

Pop. (1967 est.) 9,442,000. *Edu.* (1966-67) : Primary, schools 17,230, pupils 891,082, teachers 27,666 ; Secondary, schools 726, pupils 168,333, teachers 8,332 ; Teacher training, institutions 51, pupils 3,266, teachers 411 ; Four universities (including the technical university), students about 26 thousand.

Q

QATAR

Qatar is an independent Arabian Emirate. There was little education before 1950, when

the development of the country became necessary with the discovery of oil. The first Ministry of Education was created in 1956, which

organized and developed a modern educational system. Primary education lasts 6 years. Pupils are admitted to the primary schools normally at the age of 6 years. Primary education is followed by a 3-year preparatory (intermediate) course and a 3-year secondary course leading to Qatar General Secondary School Certificate. At present, more attention is devoted to the expansion of primary education by opening school almost in every village, supplying pupils with free text-books, stationery, mid-day meals and clothings, and providing free school transport. The education of women was started in 1955, and by 1968 the percentage of girls in the primary stage was 42.8% of the total number of primary pupils. Pupils are promoted to higher grade provided they have not failed in more than 2 subjects in the yearly examinations. After class fourth upwards, pupils are granted

government bursaries. A post-primary technical school provides a 3-year course. There are two teacher training institutions, one for boys and the other for girls, preparing teachers for the primary level. Teachers for preparatory, secondary and technical education are recruited from the neighbouring Arab countries. For higher education, the Ministry of Education sends students on scholarships abroad.

Pop. (1966 est.) about 80,000. *Edu.* (1967-68): Primary, pupils 11,871, teachers 692; Preparatory, pupils 1,501, teachers 96; Secondary (general), pupils 477, teachers 40; Religious studies, pupils 128, teachers 17; Technical, pupils 201, teachers 33; Teacher training, pupils 103, teachers 12. *Edu. budget* (1967-68) a little over 29 million rupees; 11% of general state expenditure.

R

ROMANIA

The Law of 1961 established the principle that education of all types and at all levels shall be provided free. The Law also extended the period of compulsory schooling to 8 years. The present constitution came into force in 1965, and under the terms of a new law the period of compulsory education is to be further extended from 8 years to 10 years, for children from the age of 6 years.

Children between the ages of 3 and 7 years are educated in pre-primary establishments known as day nurseries where the attendance is optional. The nurseries are of the following types to suit the working conditions of parents: part-time day nurseries, normal day nurseries, nurseries working on a weekly basis and seasonal day nurseries. The 8-year compulsory education is provided in the general 8-year schools, for children between the ages of 7 and 15. It is divided into 2 cycles of 4 years each. The education is State-organized and uniform for all schools. Romanian is the usual medium of instruction, but provision exists for the teaching in pupils' mother tongue in respect of 15 national minorities. Small villages with only a small number of school-age children have only the first cycle of 8-year school. In fact, the 8-year school covers the primary and the lower secondary levels of education.

Secondary education at upper level comes after the compulsory school period, and admission is secured after passing the secondary school entrance examination. It is provided in general or specialized secondary schools lasting 3 to 4 years and leading to the award of secondary school leaving certificate (*Maturite*). The first two years offer a general course common to all pupils, after which streaming into humanities or sciences begins. The schools are firmly linked with practical life and industry. Facilities are provided for practical work in workshops and on experimental farms. The majority of the students after obtaining the *Maturite* certificate, proceed to a vocational, technical or teacher training school, or take up productive employment. There are also a large number of pupils who after completing the general 8-year school enter a technical agricultural school (3-year training course), or an apprenticeship school (2 to 4 years of training) generally attached to a large industrial concern. Pupils may also enter a teacher training school offering a 6-year course and preparing teachers for lower classes in 8-year school. For teachers of secondary level, 2-year training is available, after *Maturite* certificate, in pedagogical institutes. Higher education is provided in the 5 universities, polytechnical, technical and agricultural institutes, teacher training institutions and institutions for art

education. The first three universities at Bucharest, Jassy and Cluj were founded between 1860 and 1872. The courses leading to professional degrees normally last 5 years.

The entire education system is directed and controlled by the Ministry of Education in co-operation with other Ministries or central bodies responsible for some schools. The Ministry provides technical assistance, direction and guidance to the executive committees of the district peoples' councils (local government authorities), which administer pre-primary, primary, secondary, vocational, technical, agricultural and teacher-training education below the third level. The Ministry of Education is supported in its activity by consultative councils and committees formed of teachers and specialists in education.

Pop. (1967 est.) 19,287,000. *Edu.* (1967-68): Compulsory general, pupils 2,927,737; Secondary, pupils 340,970; Teacher training, pupils 16,880; Specialized secondary schools, pupils 47,636, teachers 2,836; Technical and vocational, pupils 276,481, teachers 15,194; Higher, students 141,589, teachers 13,792. *Edu. budget* (1968) 8,030.3 million lei; 9.8% of general state expenditure.

RWANDA

The Rwandese Constitution makes primary education compulsory for all children up to the age of 15. The schools in the Republic are managed by denominational societies which receive grants from the government. The Minis-

ter of Education is responsible for the supervision of schools, and is assisted by a primary school inspector, a secondary school inspector, an inspector for technical education, and an inspectress for girls' schools. The primary school lasts 6 years, followed by a seventh year of preparatory course for those who want to take up secondary schooling. The general secondary education consists of 6-year course streambed into three sections: Latin-Greek, Latin-science and modern science. Those who wish to become primary school teachers may take up a 4-year training course after completing the primary education. The first three years of the course correspond to the first three years of secondary education, while the fourth year consists of teacher training. Technical education, at the secondary level, is also provided in a 4-year course, the first two years mostly comprising general secondary education and the last two years technical education. A central institution provides post-secondary courses, below the university level, for students intending to become medical assistants, veterinary assistants, agricultural assistants and specialists in home economics. The University of Butare, founded in 1963 by the Dominican Order of Canada, is the only institution of higher education. It is jointly financed by the Government of the Republic and the Dominican Order.

Pop. (1967 est.) 3,306,000. *Edu.* (1967-68): Enrolment—372,184 in elementary schools; 8,568 in secondary schools; 371 in technical school; 389 in higher education.

S

SAN MARINO

The Educational Statute of 1946 contains legal provisions governing the educational system. The detailed regulations are mostly based on the corresponding regulations existing in Italy. Primary education is free and compulsory for all children from 6 to 12 years of age. All schools, except the nurseries, are maintained by the government. The responsibility for all types of education rests with the Director of Education, whose functions are equivalent to those of a Minister of Education, and who is assisted by an advisory body. The educational system is modelled on the Italian pattern. The primary school lasts 5 years leading to the primary school certificate examination. After obtaining the

primary school certificate, pupils have to pass another examination for entering the intermediate school (*scuola media*) of 3-year course leading to the intermediate school certificate. After obtaining the intermediate school certificate, pupils can enter the upper secondary school. There is only one such school in San Marino. It consists of two cycles: the first of 2 years, known as *ginnasio* and the second of 3 years, known as *liceo classico*. Students after successful completion of secondary education normally go to Italy for higher education.

Pop. (1965 est.) 17,000. *Edu.* (1965): Primary, pupils 1,337, teachers 72; Secondary, pupils 740, teachers 41.

SAUDI ARABIA

The responsibility for education was first assumed by the Government in 1926 by setting up a Directorate of Education, which was upgraded to the status of a Ministry of Education in 1953. At present, the Ministry of Education is responsible for all types of education for boys, and the General Directorate for Girls' Schools is responsible for all types of education for girls. The technical supervision of schools is being gradually decentralized through the establishment of several inspection centres. Some colleges of higher education are supervised by the Ministry of Education, and others by religious authorities. The Riyadh University has an autonomous status. Education is not compulsory, but it is free at various levels and incentive payments are made to the students at certain levels by the Ministry. Primary education lasts 6 years for children between the ages of 6 and 12, leading to the primary school certificate. This certificate is a pre-requisite for entering the intermediate schools (lower secondary schools) of 3-year course. A new type of intermediate school with a vocational bias has also been introduced. On passing the intermediate school certificate, pupils are admitted to the 3-year upper secondary schools which provide two streams—literary and scientific—from the second year. Vocational study centres provide 2-year courses after primary education. After intermediate education, pupils can also join 3-year course of secondary vocational schools, or 3-year course or teacher training, physical or art education institutions. Higher education takes 4 years after general secondary education. After the university degree, one-year course is necessary for the diploma in education. The colleges of education and of engineering have been incorporated into Riyadh University. A post-graduate department has been set up at the Shariah College in Mecca, and it has been decided to admit women students to this college.

Pop. (1968 est.) about 7.5 million. *Edu.* (1967-68): Primary, pupils 235,225, teachers 10,846; Intermediate, pupils 29,556, teachers 1,675; Secondary, pupils 5,834, teachers 643; Teacher training, pupils 3,261, teachers 247; Technical and vocational, pupils 877, teachers 272. Expenditure of the Ministry of Education (1967-68) about 524 million rials; 10.6% of general state budget; 5.3% of national income.

SENEGAL

Senegal is a republic which became independent in 1960; it is governed by the constitution

adopted in 1963. School education is controlled by the Ministry of Education, the Ministry of Technical Education and Vocational Training, the Ministry of Popular Education, Youth and Sports and the Ministry of the Plan. Schooling is officially compulsory between the ages of 6 and 14, but the provision is partially implemented. The normal duration of schooling is 6 years in primary education, ending with the primary school certificate. General secondary education may cover a long or a short course. The long course of 7 years is provided in *lycees* and *colleges* for children between the ages of 12 and 19. It comprises two cycles; the first of 4 years and the second of 3 years leading to the *baccalaureat*. The short course is provided in schools of 4 years leading to lower secondary certificate. The technical secondary schools combine general education with theoretical and practical training for careers in the public works departments, business administration and industrial establishments. Higher education is provided in the University of Dakar and in a number of specialized institutes.

Pop. (1967 est.) 3,670,000. *Edu.* (1967-68): Enrolment—243,000 in primary education; 31,103 in secondary education; 8,585 in technical education; about 2,500 in the Dakar University. *Edu. expenditure* (1967-68) about 6,582 million CFA francs.

SIERRA LEONE

The country became independent in 1961. Primary, secondary, technical, vocational and agricultural education is the responsibility of the Ministry of Education. The responsibility for higher education is jointly shared by the Ministry and the University of Sierra Leone. Schooling is not compulsory. Primary education lasts 7 years, and is, to a very large extent, organized by local authorities, churches and missions. Secondary education covers a course of 5 years ending with the West African School Certificate. Technical and vocational education provides courses of 2 to 3 years, while teacher training offers a course of 3 years. Higher education is provided in Fourah Bay College and Freetown Training College for Teachers.

Pop. (1967 est.) 2,439,000. *Edu.* (1967-68): Primary, pupils 142,396, teachers 5,033; Secondary, pupils 22,199, teachers 1,107; Technical and vocational, pupils 1,053, teachers 97; Teacher training, pupils 798, teachers 103; Higher, students 782, teachers 247. Expenditure on education (1967-68) about 7.5 million Le.; 17.9% of state budget; 17% of national income.

SINGAPORE

Singapore became an independent, sovereign nation in 1965. The Ministry of Education headed by the Minister for Education is responsible for all types of education. The civil service head of the Ministry is the Permanent Secretary who is concurrently the Director of Education. Primary and secondary education is provided in government, government-aided and private schools; and pupils can choose any one of the four official languages—Chinese (Mandarin), Tamil, Malay, English—as the medium of instruction, although Malay is the national language. A student speaks at least two languages, one is the medium of instruction and the other is the required second language (another official language); but if neither of these is the national language, he learns Malay as his third language. Every new government school is organized to enable pupils and teachers of 2 or 3 language streams to work in one building under one administration and to participate in joint extra-curricular activities. There are private kindergartens which have to be registered with and supervised by the Ministry. Education is not compulsory, but primary education is free and universal from the age of 6 years onwards, and covers a period of six years. Secondary education lasts 4 years and is provided in secondary academic or technical schools. Measures have been taken to expand vocational and technical education in secondary schools. The secondary education is followed by a 2-year pre-university course. Post-secondary and university education is provided in the university of Singapore, Nanyang University, Singapore Polytechnic, Ngee Ann Technical College and Singapore Vocational Institute. Teacher training is conducted at the University of Singapore's School of Education and the Teachers' Training College.

Pop. (1968 est.) 2,003,800. *Edu.* (1968): Primary and Secondary, 590 schools (including 276 government), 527,083 pupils (376,790 in primary and 150,293 in secondary schools), and 19,107 teachers; Teacher training, 2,966 students in the Teachers' Training College; Higher, 5,705 students in the two universities. Government expenditure on education (1967) about \$ 151 million.

SOMALIA

Somalia is a republic which became independent in 1960 and whose recent constitution dates from 1962. The Ministry of Education is responsible for primary, secondary, vocational,

technical, agricultural and higher education. Education is not compulsory, but it is free for those who can obtain a place in existing schools. Kindergartens are in the form of Koranic schools where *Wadads* (Somali priests) teach children the Koran, elementary Arabic and arithmetic. Koranic education is a pre-requisite for entering the first level of formal education. Earlier, there were two different educational systems: the northern part (former British Somaliland) followed a 3+4+4 plan, and the southern part (former Italian Somaliland) followed a 5+3+4 plan. Now it has been possible to bring about a uniform pattern of 4+4+4 for both parts of the Republic. The primary schools last 4 years and follow the same syllabuses based on Somali culture and environment. The pupils after successfully completing the primary school enter the intermediate school offering 4-year course, and thereafter, proceed to the secondary school of 4 years. The syllabuses are being revised and 'Somalized', and the school leaving examinations are being centralized. Technical and vocational education has been abolished at the intermediate level, and raised to secondary level. Higher education is available at the University Institute of Somalia at Mogadishu.

Pop. (1967 est.) 2,660,000. *Edu.* (1966-67): Primary, pupils 21,050, teachers 738; Intermediate, pupils 5,954, teachers 230; Secondary, pupils 1,321, teachers 93; Technical and vocational, pupils 2,093, teachers 135; Teacher training, pupils 382, teachers 83; Higher, students 622, teachers 21. *Edu. budget* (1966-67) 19,429,150 Shillings; 7.21% of the State budget.

SOUTH AFRICA, REPUBLIC OF

Cultural and racial factors largely determine the educational patterns and facilities in the Republic. According to the census (1962) the population is distributed as follows:

Whites 3,088,492; Bantu (Africans) 10,907,789; Asiatics (mainly Indian descent) 477,125; Coloureds (Malay or mixed descent) 1,509,258. All are educated separately, leading to separate educational development. The Central Government's role in the field of education is gradually increasing. In 1910, when the four provinces (Cape, Natal, Transvaal and Orange Free State) formed a Union, only higher education was with the Central Government, and education other than higher was the responsibility of the provincial governments. In course of time the Central Government took

away from the provinces the responsibility for technical, vocational and other forms of specialized education, as well as the education for the Bantus, Indians and Coloureds. The four provincial educational departments administer only a portion of primary and secondary education. Separate schools are provided for ethnic groups. Education is compulsory for all 'White' children between the ages of 7 and 16, unless they have earlier passed standard VIII and obtained exemption. Primary education consists of five standards followed by secondary education of another five standards. Within the compulsory limits, education is free up to standard X, the end of secondary schooling. There is no compulsory schooling for the 'non-Whites', who are required to find a certain proportion of the funds for their own education through taxation. The Bantu schools are overcrowded. This imposes double (and sometimes triple) shifts resulting in double teaching load for the teachers. All Bantu education is in vernacular, with early specialization in subjects like gardening. The Bantu schools do not have facilities for offering scientific and technological courses needed to manage a technological society or industrialized economy. Higher education is provided in the following five types of institutions: residential universities, the University of South Africa, university colleges for 'non-Whites', teacher training colleges and technical colleges. 'Non-Whites' are prohibited from entering the residential universities meant for the 'White' population, except with the express permission of the Government. Among the university colleges for 'non-Whites', the university college of Zululand is meant for Zulu-speaking students, the College of the Western Cape admits only Coloured students, the University College for Indians in Durban caters exclusively for Asiatic students, and the University College of Fort Hare is exclusively meant for Xhosa students. The teacher training institutions catering for 'White' students are of a post-secondary level, while those catering for 'non-Whites' are largely at the secondary level.

Pop. (1967 est.) 18,733,000. Edu. for 'Whites' (1966): Primary and Secondary, schools 2,800, pupils 810,266; Teacher training, Colleges 16, students 9,734; Higher, Universities 11, students 42,902. Edu. for 'non-Whites' (1967): Primary and Secondary, schools 11,491, pupils 2,853,837; Teacher training, institutions 34, students 8,173; Higher, university colleges 5, students 4,300. Public expenditure on education (1961) 184 million rand; 4% of national income.

SPAIN

A large number of legislations govern the provision of education at primary, secondary and higher levels. Public education was established by the law of 1955, which made elementary education compulsory for all children between the ages of 6 and 12. Under the Economic and Social Development Plan 1964-67, the school leaving age was raised from 12 to 14. In 1966-67, about 12% of the population within the ages of obligatory schooling could not get schooling mainly due to the shortage of accommodation. State primary education is free. The structure of the present system of education is not very different from that established in the past except that some new modalities have been added. There is a distinct separation between the different educational levels.

The term 'primary education' (*enseñanza primaria*) includes pre-primary education. Under the Primary Education Law of 1965, Primary Education is divided into two periods: the first period of pre-school, in turn sub-divided into nursery school for children up to 4 years of age, and kindergarten for children from 4 to 6; the second period of compulsory schooling for children from 6 to 14 years of age. There is a strong social pressure for the creation of nursery schools and kindergartens, one of the reasons being that an increasing number of women are joining the working population. The current plan of studies during compulsory schooling (corresponding to the Law of 1945, ratified by Decree in 1967) includes the following groups of knowledge: Instrumental, *i.e.*, those habits and skills necessary for studying the various subjects and for doing educational exercises (reading, writing and arithmetic); Formative, *i.e.*, those which make up the basis of moral and intellectual education, including religious training, formation of patriotic spirit (history and geography), intellectual training (national language and mathematics) and physical education, and complementary, *i.e.*, those which complete minimum primary schooling (natural sciences, music, drawing, handicrafts, workshop, etc.).

The general secondary schools offer a 6-year course organized in two cycles. The first 4-year cycle concludes with a final examination which confers the title of '*bachillerato elemental*'. The second 2-year cycle of three types—letters, sciences and technical (formerly *laboral*)—concludes with a final examination which confers the title of '*bachillerato superior*'. Students who wish to enter a university are then required to pursue an additional one-year pre-university course, with its final tests, after which an examination,

known as *Pruebas de Madurez* (Maturity Tests), is taken, which replaces the former university entrance examination. Other types of education at secondary level include : professional training, commercial education and intermediate technical schools.

Those intending to become *masters* (primary school teachers) have to complete the second cycle of secondary education (higher bachillerato) before entering teacher training institutions offering 2-year course. After the successful completion of the course, students teach at a national public school to acquire practical training, for which they are paid and after which they are awarded the title of *master*. Those with the best grades directly enter the National Corps of Primary School Teachers, and others have to take a competitive examination for entering the National Corps. Higher education is provided in twelve State universities, one private Catholic university and in a number of higher technological institutes. Teachers for secondary schools are required first to obtain a university degree and then to complete one-year practice teaching.

The Ministry of Education and Science has responsibility for all types of education though other ministries and private agencies have some educational institutions under this direction. It is advised by the autonomous National Council of Education. The provincial authorities (*diputaciones*) and the municipalities also help to maintain local educational institutions. The task of formulating a national policy on education is underway, which aims 'to make the educational process a continuous system with unity and inter-relation of its structure, and to offer the opportunity of permanent education throughout men's and women's life'. The proposed reforms include : basic general education, free and compulsory until fourteen years of age ; elimination of rural-urban inequality in educational opportunities ; intensive and accelerated professional training ; and university autonomy.

Pop. (1967 est.) 32,140,000. *Edu.* (1966-67) : Primary, pupils 3,971,803, teachers 114,810 ; Secondary, pupils 1,114,620, teachers 19,919 ; Secondary (technical), pupils 72,207, teachers 3,606 ; Teacher training schools, pupils 66,340, teachers 1,027 ; Higher, students 141,149, teachers 9,509. *Edu. budget* (1968) 27,031 million pesetas.

SUDAN

Sudan is a republic which became independent in 1956. The responsibility for education rests with the Ministry of Education, though

Ministries of Agriculture and Forests and of Health have also some responsibilities in connection with education. The whole school system of education was predominantly academic, but now steps have been taken to open more vocational schools and reform technical education, at all levels. Education is free but not compulsory in primary schools. It lasts 4 years and caters for children normally between the ages of 7 and 11. The 'village schools' providing incomplete primary education are now being substituted by full primary schools. The four-year primary school is followed by a four-year intermediate school (lower secondary level), which leads to the 4-year secondary school. The completion of intermediate education also provides entry to the 2-year teacher training centres, which prepare teachers for primary schools. Higher education is provided in the university of Khartoum (1951), the Islamic University of Omdurman (1968), the Khartoum Technical Institute and the teacher training colleges.

Pop. (1967 est.) 14,355,000. *Edu.* (1967-68) : Primary, pupils 518,261, teachers 10,612 ; Secondary, pupils 134,407, teachers 6,336 ; Teacher training, pupils 2,165, teachers 263 ; Higher, students 8,724, teachers 689. *Educational expenditure* (1967-68) about 20.6 million Sudanese pounds ; 25.2% of State expenditure ; 4.2% of gross national product.

SWAZILAND

The country emerged as a non-racial democratic State after acquiring its independence in 1968. It is governed by a constitution which recognized fundamental human rights irrespective of race, colour or creed. In 1962, Swaziland declared its policy of non-racialism, which resulted in the abolition of the three clear-cut divisions of the school system—African, European and Eurafrian. Under the process of integration African and Eurafrian children have a free access to schools which previously catered only to the needs of European children. Earlier, education was compulsory only for the children of the European community, which was served by the government schools ; while there was no compulsory schooling for the children of the Eurafrian and African communities, the former was served by the government-aided mission schools, and the latter by tribal schools including national schools. African post-primary institutions included 3-year junior secondary schools, 5-year high schools, 2-year teacher training centres, and a 4-year trade school. The reorganization of an integrated school system is already under way, and common syllabuses have

been introduced, ensuring easy transfer from one school to another. The changes being made in the school system tend to give education a national character and to meet the country's need.

Pop. (1967 est.) 344,000. Edu. (1967): Primary, schools 349, pupils 59,287; Secondary, schools, 31, pupils 3,792; Teacher training, colleges 2, students 181.

SWEDEN

One of the fundamental objectives of Swedish educational policy is to give everyone an equal opportunity to develop his interests and aptitudes. It is, therefore, not surprising that the system has been radically transformed in recent years.

In accordance with a *Riksdag* (Parliament) decision, the transition to a compulsory nine-year comprehensive school (*grundskola*) for the whole country began in 1962. The new system is being gradually introduced, and will be completely established during the school year 1972-73, thereby replacing all previous forms of primary education. In 1968, the *Riksdag* decided on a new syllabus for the comprehensive school to be introduced in grades 1, 4 and 7 during 1970-71, and throughout the school by 1972-73. The comprehensive school is divided into three departments: a Lower Department (grades 1-3), a Middle or Intermediate Department (grades 4-6), and an Upper Department (grades 7-9). The school is free from examinations. The most important feature of the school is that pupils are not assigned to different streams before the ninth grade. In the Lower and Middle Departments all the pupils in one annual group study the same subjects and take the same course and are taught by the same teacher. Optional subjects are introduced in grades 7 and 8, but classes, as far as possible, consist of the same pupils. In the ninth grade there are nine streams covering five sectors. Four sectors consist of two streams each—one theoretical, and the other more practical and vocational in nature, and the fifth sector consists of only one stream. Compulsory subjects in the Lower Department are Swedish, mathematics, religion, provincial culture, music, handicrafts and gymnastics. In the Middle Department provincial culture is replaced by civics, history, geography, and the study of nature. English, the first foreign language, is compulsory from grade 4 to grade 7; in the new syllabus English teaching is to start in grade 3 and is to continue till grade 9. In grade 7 either German or French may be added as a second foreign language and natural sciences are introduced. Pupils attending the

comprehensive school receive school lunches free of charge and they are also entitled to free textbooks.

In 1966, a single municipal *gymnasium* (general secondary school) replaced the three types of *gymnasia*—general, commercial and technical—which up to then were separately run by the national government and local authorities. The new *gymnasium* is superimposed on the comprehensive school and gives three years of education in five curricula: liberal arts (humanities), social sciences, business (economics), natural sciences and technical arts. Provision is made for a 'common core' of subjects, being largest in the first year with specialization increasing in subsequent grades. All except technical-arts pupils are required to study three foreign languages for at least one year each.

The continuation school (*fackskola*) a new type of institution, is designed to give pupils a goal-directed education in order to prepare them for their future profession. It offers a two-year course of three different types—social, business and technical. Unlike the *gymnasium*, completion of a continuation school does not qualify the student for entrance into the university. In 1968, the *Riksdag* decided in favour of the amalgamation of *gymnasium*, continuation school (*fackskola*) and vocational school (*yrkesskola*) in a single school form, in order to create a more uniform secondary school system. Pupils in most of the Swedish *gymnasia* receive school lunches free of charge, and about half of them receive free text-books.

Higher education is provided in five universities, university colleges, institutes of technology and other institutes which offer post-secondary courses of various types. Teacher training at higher level is provided in two types of institutions: one preparing teachers for the lower grades of the comprehensive schools; and the other admitting university graduates and preparing them for the upper grades of the comprehensive schools and the *gymnasia*. Those distinctively Scandinavian institutions, the folk high schools have long played a very important role in adult education. The Ministry of Education is responsible for primary, secondary and university education.

Pop. (1967 est.) 7,893,700. Edu. (1967): Comprehensive school, pupils 906,900, teachers 57,200; Gymnasium, pupils 111,700, teachers 8,200; Continuation, pupils 22,400, teachers 1,900; Vocational, pupils 70,700, teachers 8,100. Higher education, students 97,600. Public expenditure on education and research (1967-68) 6,750 million Swedish crowns: 18.6% of total

State expenditure ; approximately 7% of gross national product.

SWITZERLAND

Switzerland is a Confederation comprising 25 cantons and demi-cantons, each having sovereign authority in the field of primary, secondary and higher education. The structure of the educational system varies from one canton to another, characterizing the cantonal differences of history, geography, religion, culture and language (French, German, Italian and Romansh). As such, Switzerland can boast of 25 different educational systems. It also explains the absence of a Ministry of Education or any Federal Authority responsible for public education in Switzerland. The Federal Institute of Technology is the only educational institution under the direct control of the Confederation, which is also responsible for vocational training. Moreover, the Confederation subsidizes the cantons to assist them in the fulfilment of their tasks in the field of education. A Conference of Directors of Education of the Cantons ensure Swiss educational co-ordination by offering recommendations and guidelines.

Despite its great variety, the Swiss educational system presents a certain unity. Pre-primary education for children between the ages of 4 and 6 is on a voluntary basis except in the canton of Geneva. Compulsory education begins in the primary school, when the children are at the age of 6 or 7, and the length of compulsory school attendance varies between seven and nine years. The Swiss Conference has recently approved guidelines indicating that the age of primary school entrance should be 6 years, and compulsory schooling should last 9 years throughout the country. The period of compulsory schooling is divided into two stages, one covering primary education proper, and the other covering lower secondary education. The decision regarding pupil's future branch of academic studies is often made during the period of compulsory schooling. Depending on the canton, streaming into the different types of education is undertaken after the third school year (Vaud), fourth school year (Basel, Berne), fifth school year (Solothurn, Aargau etc.), or sixth school year (Zurich, Geneva etc.). Some 60 per cent of all children continue their general education after the end of compulsory school attendance at the age of 14 to 16. Some of these young people enter an apprenticeship, or go to a full-time vocational school of agriculture, commerce or administration lasting 2 or 3 years and leading to a vocational certificate.

Most pupils desirous of a university education attend a higher secondary school (*gymnasium* or *college*) lasting 3 or 4 years and leading to the federal or cantonal matriculation examination. There are three types of federal matriculation certificates : type A (Latin and Greek), type B (Latin and Modern Languages), type C (Science and Mathematics). There are also higher technical schools, at the higher secondary level, leading to a diploma which, in certain cases, gives access to the polytechnical institutes and to the universities.

The colleges of education (except in Geneva and Basel town where the universities train the primary school teachers) admit students who have completed a secondary school education and offer a 4 or 5-year course leading to the Primary Teachers Training Certificate. The 2 or 3-year training of secondary school teachers presupposes the award of matriculation certificate at higher secondary school, or the possession of the Primary Teachers' Training Certificate, and is carried out in a university. The professional training of assistant masters in higher secondary schools is provided through a 4 or 5-year course at a university. Higher education is provided in eight cantonal universities which are public institutions having a certain degree of autonomy. The Institut Jean-Jacques Rousseau of the University of Geneva is of international repute.

Pop. (1967 est.) 6,071,000. Number of pupils in various types of education (1967-68) : Elementary 465,575 ; Secondary lower 219,838 ; Secondary upper (general) 29,740 ; Secondary upper (vocational) 152,798 ; Higher 38,360. Public expenditure on education (1964) 2,129 million francs ; 4.6% of national income.

SYRIAN ARAB REPUBLIC

The country has been independent since 1946. Its last provisional Constitution was abrogated in 1964. The responsibility for pre-school, primary, secondary and technical education and teacher training rests with the Ministry of Education, while higher education comes under the Ministry of Higher Education, and agricultural education under the Ministry of Agriculture. Under the Syrian Constitution primary education is free and compulsory, and covers 6 years, for children up to the age of 14 years. The general secondary education is divided into two cycles of 3 years each : the first cycle is known as the 'intermediate' or the 'preparatory' ; the second cycle is known as the 'secondary', and consists of the first year of general studies and the last two years of specialization either in arts or in science

leading to the award of *baccalaureat*. Television lessons have been started in science, mathematics and Arabic. Technical and vocational schools provide specialized education parallel to the two cycles of general secondary education. The teacher training lasts 4 years after the end of the first cycle of secondary education, or one year after *baccalaureat*. Higher education is provided in the University of Damascus (1923), and the University of Aleppo (1960), and in the higher technical institutes.

Pop. (1967) 5,798,875. *Edu.* (1967-68) : Primary, pupils 747,676, teachers 20,663 ; Intermediate, pupils 145,794 ; Secondary (general), pupils 61,619, teachers (both for intermediate and secondary general) 10,918 ; Intermediate and secondary (industrial), pupils 4,183, teachers 434 ; Teacher training, pupils 6,276, teachers 522 ; Higher (two universities), students 31,012, teachers 422. *Edu. budget* (1968) 170.2 million Syrian pounds ; 16.5% of state budget ; 4% of national income.

T

TANZANIA, UNITED REPUBLIC OF

The United Republic of Tanzania, which comprises Tanganyika and Zanzibar, was created in 1964 (Tanganyika having acquired its independence in 1961). The Republic adopted its own constitution in 1965. The Ministry of Education is responsible for pre-primary schools (managed by certificated teachers), primary, secondary, technical and higher education ; the Ministry of Regional Administration and Rural Development controls kindergartens in which certificated teachers are not employed. Before the independence of Tanganyika in 1961, education was organized on racial lines with separate schools for Africans, Asians and Europeans. The legislation in 1961 abolished the racial segregation in education, and introduced an integrated system. Swahili is the medium of instruction in the primary classes, while facilities for the teaching in English and Asian languages continue. Education is not compulsory. The duration of primary education, which earlier lasted 8 years till 1967, has been reduced to 7 years. It is followed by a 5-year secondary course (which was earlier 4-year course) leading to a joint examination for the School Certificate and General Certificate of Education. A further course of 2 years is necessary for taking the Higher School Certificate examination which is the qualification required for entry to colleges of the University of East Africa. This university is founded on an East African inter-territorial basis, and it comprises the three constituent colleges of Dar-Es-Salaam (in Tanzania), Makerere (in Uganda), and Nairobi (in Kenya). A special B.A. course on management and administration has been introduced, and most of the students for a general degree are directed to take this course. Faculty of

Medicine has newly been established. Dar-Es-Salaam Technical College offers 3-year course for training middle-grade technicians ; outstanding students after the completion of the course can qualify for an engineering course at the university. The changes being made in the school and college curricula tend to give education a national character and to face up to the country's need.

Pop. (1967 est.) 12,173,000 (Tanganyika 11,820,000 and Zanzibar 353,000). *Edu.* (1966) : Primary, pupils 740,991, teachers 14,809 ; Secondary, pupils 23,836, teachers 1,171 ; Teacher training, pupils 1,359, teachers 230 ; University, 647 students. *Educational expenditure* (1967-68) about 161 million shillings ; 17.5% of total state budget.

THAILAND

A national scheme of education was passed by the National Council of Education and was announced by a Royal proclamation in 1960. The scheme provided that the State should make every effort to extend the period of compulsory education as far as it is economically possible. The period of 4 years of compulsory education provided under the Primary School Act of 1921 is being extended to 7 years through pilot projects. Every child who has reached the age of 7+ must attend a school. Compulsory education is free in government schools.

There are both government and private kindergarten schools. the first government kindergarten school was opened in 1940. Elementary (primary) education lasts 7 years and is divided into the junior school consisting of 4 lower grades (*Prathom* I-IV), and the senior school consisting of 3 upper grades (*Prathom* V-VII). Secondary education takes

individual differences into consideration and is divided into two streams—the general stream and the vocational stream. In the general stream, secondary education lasts 5 years consisting of 3 lower grades (*Mathayomsuksa* or M.S. I-III), and 2 upper grades (*Mathayomsuksa* or M.S. IV and V). The successful completion of the 5-year general stream of secondary education provides entry to institutions of higher education. In the vocational stream, schools have courses of various lengths from one to three years depending on the nature of the trade or profession. Some of the courses in the vocational stream require as foundation the 3 lower grades (I-III) of the general stream. The teachers are trained in the teacher training institutions, College of Education in Bangkok and the Faculty of Education at Chulalongkorn University. After completion of M.S. III, one can join a 2-year course in a teacher training institute for becoming qualified to teach up to the end of primary education (*Prathom* VII); after completion of M.S. V, or holding an Elementary Education Certificate, one can join a 2-year course for a Secondary Education Certificate; and after Secondary Education Certificate one can join a 2-year course for B. Ed. degree. There are 6 universities in Thailand, the oldest being the Chulalongkorn University established in 1917. Higher education is also provided in technical colleges and teacher training institutes.

It is the duty of the State to promote and foster education. The Ministry of Education is responsible for the control, guidance and supervision of schools. In pursuance of the government's policy of decentralizing educational administration, the State primary schools were placed under the jurisdiction of provincial authorities in 1966, the Ministry of Education, however, remaining responsible for the direct control of the several demonstration or pilot schools. The country is divided into 12 educational regions, each region consists of several provinces, and each province (*changwad*) is subdivided into several districts. Each district (*amphur*) has an *amphur* education officer responsible to the *changwad* (provincial) education officer, who is responsible to a regional education officer. The *changwad* and the regional education officers are responsible, each in certain matters, to the Ministry of Education. The university councils are directly responsible to the National Council of Education whose chairman is the Prime Minister.

Pop. (1967 est.) 32,680,000. *Edn.* (1966) : Primary, pupils 4,155,001, teachers 114,101; Secondary, pupils 162,114, teachers 10,040;

Vocational, pupils 52,753, teachers 5,670; Teacher training, pupils 23,403, teachers 2,108; Higher, students 31,501, teachers 3,634; Private (all levels), pupils 892,951, teachers 38,234. Edu. budget (1967) 2,838 million bahts.

TOGO

Togo is a republic which became independent in 1960. Education is provided by the government and also by private organizations mostly consisting of Roman Catholic and Protestant missions. The Ministry of Education is responsible for all types of education except pre-primary education and literacy drive, which come under the Ministry of Social Affairs. Education is free, and compulsory, wherever feasible, during the period of primary education. The normal duration of primary education is 6 years, the age limit being 17 years. Admission to the secondary education is through a competitive test. It comprises two types of courses—long and short. The long course of 7 years is available in *lycees* and *colleges modernes* and leads to the *baccalauréat*. The short course of 4 years leads to the award of *brevet élémentaire*. Technical and vocational education is provided in commercial or industrial schools, which offer courses of 3 or 4 years depending on the subjects. *Ewe* is the language of instruction at the primary level, where all teachers are Togolese. It is planned to open a college to train teachers at three levels: assistants, primary teachers, and teachers for general secondary schools. There are no institutions of higher education, and students need to go abroad for higher studies. For administrative purposes, nine educational districts have been created.

Pop. (1968 est.) 1,746,400. *Edn.* (1967-68) : Primary, pupils 171,336, teachers 3,290; Secondary, pupils 13,678, teachers 537; Technical, pupils 1,552, teachers 80. Edu. budget (1968) 1,096 million CFA francs; 2.7% of national income.

TRINIDAD AND TOBAGO

Compulsory schooling is provided for children between the ages of 6 and 15 and is free. There are government schools, aided denominational schools and private schools. Education in the primary and secondary schools, and in the teacher training institutions is centralized under the Ministry of Education and Culture. The University of the West Indies, which has four faculties in Trinidad, is supported by several West Indian Governments through a University Grants Committee. There are

several types of schools : primary schools (5 to 11 years), elementary schools (5 to 15 years), intermediate schools (5 to 18 years), and secondary schools (11 to 19 years). At the age of 11 (which corresponds to the completion of primary course) pupils may enter secondary schools from the first three types of schools through a common entrance examination. Pupils at the age of 15 may enter technical and trade schools. Students seek admission to the University and the teacher training colleges after successfully completing the secondary education, and attaining the age of 17. Higher education is available in the four faculties—arts, science, agriculture and engineering—which form part of the University of the West Indies, in four teacher training colleges and one technical college.

Pop. (1967 est.) 1,010,000. *Edu.* (1966-67) : Primary, schools 460, pupils 219,679, teachers 6,311 ; Secondary, schools 42, pupils 25,511, teachers 1,174. Expenditure on education (1964) \$ 27 million ; 3.4% of national income.

TUNISIA

Tunisia is a republic which became independent in 1956, and adopted its own constitution in 1959. The responsibility for primary, secondary, and higher education is vested in the Secretariat of State for Education ; and that for vocational education is vested in the Secretariat of State for Youth, Sports and Social Affairs. The Education Reform Law of 1958 initiated reform of both general and technical education after the independence. Primary education is compulsory and lasts 6 years for children between the ages of 6 and 12. Education is free at all levels. Pupils, after successfully completing the primary education, can enter the secondary level through a competitive examination. The full secondary course covers a period of 7 years and is organized in 2 cycles of 4 and 3 years respectively. There are three types of secondary schools—general, technical and commercial. In the upper cycle of the general secondary school one may select out of the five options : modern languages and literature, classical studies, science, mathematics, and teacher training. In the upper cycle of the technical school, one may either prepare for higher technical education, or for employment at the intermediary level of technical occupations. Similarly, in the upper cycle of the commercial school, the choice lies between higher commercial education and employment at the intermediary

level. All the three types of secondary schools lead to the award of *baccalaureat* which qualifies for admission to institutions of higher education. Higher education is available in the University of Tunis, and in specialized institutes attached to the university.

Pop. (1968 est.) 4,633,351. *Edu.* (1967-68) : Primary, pupils 810,795, teachers 15,188 ; Secondary, pupils 80,905, teachers 3,278 ; Secondary vocational, pupils 34,181 ; Teacher training, pupils 6,103 ; Higher, students 7,828, teachers 304. *Edu. budget* (1968) 31.3 million dinars ; 25.2% of general state expenditure.

TURKEY

Turkey is a republic which became independent in 1923, and whose last constitution dates from 1961. The constitution contains fundamental provisions relating to education. Pre-primary, primary, secondary, vocational and technical, theological and higher education are administered by the Ministry of Education. The normal duration of compulsory schooling is five years for all children from 6 years of age, and is free in State schools.

The primary schools provide five years of education. The full secondary course covers a period of 6 years and is organized in two cycles, each of 3 years. It may be either general, vocational or technical in nature. General secondary education is provided first in the 3-year middle or intermediate school leading to the intermediate certificate which admits a pupil to the *lycee* ; and then in the 3-year upper or higher secondary school (*lycee*) leading to secondary school leaving certificate which gives access to the universities. Vocational institutes and trade schools at the secondary level offer 3 or 4-year programmes, and admit students who have completed primary school. The higher technical schools at post-secondary level offer courses of 2 to 5 years' duration. The secondary-level teacher training schools provide a 3-year course for students holding the intermediate school certificate. Higher education is provided in 7 universities.

Pop. (1967 est.) 32,710,000. *Edu.* (1967-68) : Primary, pupils 4,526,000, teachers 103,977 ; Secondary, pupils 715,766, teachers 16,276 ; Technical and vocational, pupils 153,484, teachers 7,310 ; Universities, students 68,337, teachers 4,738. *Budget of the Ministry of Education* (1968) 3,924.4 million Turkish pounds ; 17.3% of state budget ; 4% of gross national product.

U

UGANDA

Uganda is a sovereign State which became independent in 1962, and adopted its own constitution in 1966. The Ministries of Education, of Agriculture, of Forests, and of Co-operatives share the responsibility for education in the country. Majority of the schools are run by religious bodies and missions, though the government also provides a small number of institutions mostly at the post-primary level. University education is free, but nominal fees are charged at the primary and secondary levels. The multiplicity of ethnic and linguistic groups affect the provision of education. The vernacular will now replace English, as the language of instruction, in the first three years of primary school. The duration of primary education has been reduced from 8 to 7 years from 1966 and the annual eliminating examinations have been abolished, so that a pupil has every chance of proceeding automatically to class VII. The lower secondary schools (classes V-VII) provide three years of general studies leading to the junior schools' leaving examination. The upper secondary schools offer a course of 4 years leading to 'School Certificate'. Two further years of schooling is necessary for the Higher School Certificate. Rural trades school and technical schools offer 3-year courses at the post-primary level. A number of teacher training institutions both at the lower and upper secondary levels provide training courses of varying length. The Institute of Education of Makerere University College provide, 3-year post-graduate training course for secondary school teachers. Higher education is provided in Makerere University College, one of the three constituent colleges (other two in Kenya and Tanzania) of the University of East Africa, founded on an East African inter-territorial basis.

Pop. (1967 est.) 7,934,000. Edu. (1966) : Primary and lower secondary, schools 2,676, pupils 633,546, teachers 17,821; Upper secondary (School Certificate and Higher School Certificate courses), schools 85, pupils 21,548, teachers 1,101; Teacher training, institutions 27, pupils 4,097, teachers 281; Technical, institutions 5, pupils 1,000, teachers 91; Agricultural, institutions 7, pupils 669, teachers 43; The Uganda Technical College, students 410, teachers 54; University of East Africa, students 1,190. Recurrent and developmental expenditure on education 3.4% of gross national income.

UNION OF SOVIET SOCIALIST REPUBLICS

Principal features of the Soviet system of education are :—

1. The fundamental principle of administration of education in the U.S.S.R. is the central direction combined with local initiative.

2. The Central Committee of the Communist Party has a great bearing on the formulation of educational policies in the U.S.S.R.

3. Education in the U.S.S.R. is the first and foremost responsibility of the State. Education is looked upon by the planners as an investment of the highest importance. In the budget of a Republic, it accounts for 33 to 40 per cent of the total allocation and at the city regional level 60 to 65 per cent. All educational establishments from the nursery to the university are maintained and supervised by the State.

4. Free tuition is provided at all levels.

5. The schools and other educational and cultural institutions are secular in nature.

6. U.S.S.R. has a unified school system with complete continuity between all links and stages of education system.

7. The people have equal rights to be taught in their native language.

8. The educational establishments establish a close contact with the mass organisations of working people and the general public which in turn show a keen interest in training the children and the youth.

9. Mathematics and science occupy a place of prominence in the school curriculum.

10. Co-education is one of the bed-rocks of the Soviet education.

11. Since universal compulsory education has been carried into effect the disparity between the educational standards of the urban and rural population is being successfully overcome.

12. Work is an essential component of curriculum at all stages of education.

The Soviet system of public education embraces pre-school establishments; general education schools of various types; vocational schools of the lower grade (specialised secondary schools and vocational schools), and the middle grade (technical schools); and the establishments of higher education (universities and institutes). It also includes extra-school establishments for children and adolescents and cultural educational establishments for the

young people as well as adults.

Pre-school education for children from 3 to 7 years of age is a part of a single system of education. There are several types of kindergartens in the U.S.S.R.: one which keeps the child 10 hours daily; one with a 12-hour sojourn; and others that keep the child all the week and from which the parents take their children home only on Sundays and on holidays. These boarding pre-schools are for children whose mothers work on evening shifts. In recent years, a new type of pre-school institution has been organised: the combined nursery-kindergarten. Children in such institutions are divided into seven age groups—from three months to seven years.

Soviet pre-school establishments are supervised by specially trained doctors and teachers. The teachers maintain close contact with the children's families. Kindergartens are a great boon to Soviet women, who account for three-quarters of the country's doctors and teachers, one-third of the engineers and scientists and nearly half the students. The pre-schooling does not place any strain on the family budget, since the State covers all maintenance expenses, the parents having to pay only part of the cost on the child's food.

The Soviet Union introduced universal compulsory four-year education in 1930 and followed it up by universal, compulsory seven-year education in 1949.

Eight-year schooling for the children aged 7 to 15 or 16 years was first introduced in 1958, and made compulsory in 1963. (In 1966, the Communist Party programme envisaged the transition to universal compulsory 10-year education by 1970.) The 'eight-year school' is the official title for incomplete secondary general schooling which provides the pupils with the fundamentals of general and polytechnical knowledge. Eight-year schooling consists of two stages: primary, the first four years (forms 1 to 4); and secondary, the last four years (forms 5 to 8). The school is unstreamed throughout; the same curriculum is followed by all children.

Schooling in the first four forms is of an elementary nature, with one teacher giving 24 lessons a week in all subjects. The main subject is the native language; and in areas with a non-Russian population, the native language and Russian. Other subjects are: arithmetic (one lesson everyday), drawing and music (one lesson a week of each), physical culture and handicrafts (two lessons a week of each). Two new subjects are introduced in the fourth form—nature study

and history (two lessons a week of each). Each lesson or school period lasts 45 minutes.

In the senior classes (forms 5 to 8) of the eight-year school, the pupils are taught the fundamentals of the natural and social sciences and are shown how they are related to practice and everyday life. At this stage polytechnic training is introduced.

Work is an essential component of the curriculum at all stages of education. In primary school there are handwork classes where the children make things out of cardboard, paper, sand or clay and learn to jig-saw patterns or needlework. From the fifth form onwards they work in the school wood-working and metal-working shops, learn to sew and cultivate the school garden. In the 9th form, the pupils take practical training courses at factories or farms.

Lessons in mathematics, physics, chemistry, biology and other subjects are related to the scientific basis of modern production, to production and technological processes and are rich in examples of how scientific knowledge is applied in modern production.

Many subjects taught in fifth to eighth classes constitute an important part of the curricula for the complete secondary school.

In the lower classes, the pupils move up from one class to another almost as a matter of course. The first formal examination is conducted by the State after the conclusion of form 8. Examination in most of the school subjects is conducted orally, and only in a few subjects written tests are taken. Corporal punishment in any form is prohibited.

When the child has had 8 years of general elementary education, there is trifurcation of education into three types of schools, namely:—

- (a) Vocational schools or Trade Schools giving 2-year course in minor trades.
- (b) Specialised secondary schools which give 3 to 4-year technical courses.
- (c) General education schools up to 10th class.

Percentage of students attending different types of schools during 1965-66 was as under:—

- (a) Trade schools 20%.
- (b) Special Secondary Schools 15%.
- (c) General Education Schools 65%.

The vocational and technical secondary schools train skilled workers and farmers. Some vocational technical schools impart not only professional training but also provide general education of the kind one can have at the complete secondary school.

There are also evening vocational-technical schools and evening departments at day schools

for training skilled workers employed in plants and factories

Specialised secondary schools are set up for raising the level of general education of the working class and peasantry, as well as for augmenting the ranks of the intelligentsia. Admission to these schools is by competition. After getting a secondary general and specialised education (the eight-year school plus the four-year specialised school), the graduates can work in the field of their specialisation.

Along with education at day schools, there is evening and extra-mural education which is highly popular in the Soviet Union.

Textbooks for schools, like the curriculum, are almost uniform throughout the country and are published by the State. School curricula, programmes and textbooks are constantly reviewed so that system of school education is kept in line with the development of science, engineering and culture.

Inspection of schools is effected by district, city and regional public departments and Ministries of Education in the union republics. A systematic check on the standards of tuition is kept by the school inspectors at the U.S.S.R. Ministry of Education. These inspectors help inspectors of schools in the republics and assist in the preparation of curricula, textbooks, teaching material, etc.

Higher education in the U.S.S.R. can be obtained at colleges of different kinds, which may be roughly classified into three main groups viz., universities, polytechnical institutes and specialised institutes. The principal aim of Soviet Universities is to give their students a solid theoretical background and to combine research and study.

Polytechnical institutes occupy an important place among technical colleges. They have numerous departments training engineers in a variety of professions. The Leningrad Polytechnical Institute, for example, has eight departments training specialists in 62 specialities.

Workers and peasants prefer studying at evening departments or by correspondence. They constitute at present an overwhelming majority. Special privileges are granted by the State to those who study and work simultaneously. For instance, they are granted 20 to 60 days of paid leave annually for preparing for the examination.

The youth movement, though not formally part of the school system, is an important adjunct to it. It consists of the Octobrists (for children under 10), the Pioneers (for children between 10 and 15), and the Komsomol

(for the youth between the ages of 15 and 27). These organisations provide for leisure time activities, and play a significant part in imparting social, moral and political education, and building up discipline.

Pop. (1967 est.) 235,520,000. *Edu.* (1967-68): 48,901,000 pupils in general education, 4,166,600 in specialized secondary education, and 4,310,900 in higher education. In 1968-69, there were 204,000 schools of general education with 49 million pupils and over 2.5 million teachers; over 4,000 specialized secondary schools with about 4.3 million pupils; 46 universities, 208 pedagogical institutes, and 228 technical colleges with a total enrolment of 2 million. Budget for public education, scientific development and culture (1967) 42,900 million roubles; 23.4% of national income.

UNITED ARAB REPUBLIC

The United Arab Republic formerly consisted of Egypt and Syria, but Syria withdrew in 1961. Education is a constitutional right provided by the State for all citizens. In 1962, a Presidential Decree proclaimed that education shall be free at all levels, including higher education. Administratively, the Republic is divided into governorates, towns and villages. The governorate councils are responsible for general and technical secondary schools, and teacher training institutes; the town councils for general and technical preparatory schools, and primary schools; and the village councils for primary schools. Pre-school education is the responsibility of the Social Affairs Department under the Ministry of Social Affairs and Al-Azhar. The Ministry of Education is responsible for primary, preparatory, secondary, and secondary technical education. Within the Ministry, the responsibility is distributed between the central organizations at Cairo and the directorates of education in the governorates. The Ministry of Higher Education supervises the various types of higher education, although the universities are entirely independent.

The system of school education is organized into three levels, namely, the primary, the preparatory (lower secondary) and the secondary. The law has set 6 years as a minimum age for compulsory schooling and 6 years for its duration. This corresponds to primary schools providing a total programme of common education for children between the ages of 6 and 12. Measures have been taken to admit as rapidly as possible all children reaching the age of compulsory schooling by enabling the divisional inspectors, school

principals and teachers to know, from the official registers of the birth, the number of children reaching school age and to make necessary plans for admission. The pupils, after completing the primary schools, enter the preparatory schools offering a 3-year course. These preparatory schools are of two types—general and technical. Earlier, preparatory technical schools were differentiated into several types including occupational terminal schools which were independent of the secondary schools. Under the new policy of the Ministry of Education, these preparatory technical schools are being transformed into secondary technical schools or general preparatory schools with practical courses having close bearing on the local environment.

Pupils who obtain the Preparatory Certificate from the general preparatory school can enter the general secondary school or secondary technical school. The whole period of (upper) secondary schooling lasts 3 years. The secondary school certificate awarded at the end of secondary stage entitles students to enrol at the higher institutes and universities. The Republic has four State universities—Cairo, Alexandria, Ain Shams and Assiut—with a total enrolment of more than 124 thousand. Of this, Cairo University alone has more than 43 thousand students. A fifth, namely, Al-Azhar University, has developed from the traditional religious educational organization to a modern university. This classical University of Al-Azhar at Cairo has been in existence for more than a thousand years and is still the biggest Islamic institution preserving Islamic traditions and knowledge. Within Al-Azhar are primary, preparatory, secondary and higher levels with about 32 thousand, 20 thousand, 14 thousand and 17 thousand of students respectively.

Pop. (1967 est) 30,907,000. *Edu.* (1967-68): Primary, pupils 3,513,568, teachers 88,510; Preparatory (general), pupils 757,604, teachers 26,761; Preparatory (technical), pupils 9,008, teachers 764; Secondary (general), pupils 275,091, teachers 13,163; Secondary (technical), pupils 153,648, teachers 10,035; Primary teacher training, pupils 34,894, teachers 3,584; Higher students 171,126, teachers 4,162. Budget of the Ministry of Education (1967-68) 89.4 million Egyptian pounds; 13.3% of total state budget; 4.1% of national income.

UNITED KINGDOM

The aim of the State system of education in Britain is to provide a comprehensive service for all who can profit from it: 'to secure for children a happier childhood and a better start

in life; to ensure a fuller measure of educational opportunity for young people and to provide means for all of developing the various talents with which they are endowed and so enriching the inheritance of the country whose citizens they are'.

The British system of education is characterised by the decentralisation of its administration. Administration of the public system of primary, secondary and further education is divided between the Central Government Departments, local education authorities and various voluntary organisations. Relations between these three groups are based on consultation and cooperation.

England and Wales

Basically the Education Act of 1944 governs public education in England and Wales. All aspects of education in England and Wales are the responsibility of the Secretary of State for Education and Science. (The Ministry of Education became the Department of Education and Science and the Minister, the Secretary of State in April 1964.) The Secretary of State issues statutory regulations and circulars to local education authorities (L.E.A.) and other bodies. Though the final word rests with him, there is real autonomy for the education committees of the publicly elected local authorities who are responsible for providing education at three progressive levels—primary, secondary and further education.

There are no official syllabuses. Local Education Authorities recommend curricula and methods but the final choice rests to a considerable extent with the head teachers of schools. Although the head teacher has vast powers of decision about the curriculum, devolution of authority goes deeper than this. Almost every subject specialist has the freedom to draw up his own syllabus or prescribe his own preferred books and methods within the prescribed framework.

Her Majesty's Inspectors are advisers and expeditors. They do not really order anyone to do anything. They draw up advisory pamphlets which the Department of Education and Science publishes.

The Central Advisory Councils (one for England and one for Wales) established under the Education Act of 1944, advise the Secretary of State on matters referred to them; they may also take the initiative.

Parents are required by law to ensure that their children receive efficient full-time education at school or elsewhere, between the ages of 5 and 15; from 1972-73 the minimum school

leaving age is to be raised to 16.

Compulsory school attendance was imposed in 1880 and by 1891, elementary education was generally free. At present children have free primary education up to the age of 11; free secondary education from 11 to 15, as a minimum, or to 18 if the children wish and show ability; free university education if they satisfy university entrance requirements and do not belong to prosperous families; and free admission to all technical and commercial courses.

There are three kinds of schools supported from public funds: county schools (the largest group) which are provided and maintained by local education authorities wholly out of public funds; voluntary schools (mostly 'aided' or 'controlled' schools) which have been provided by a voluntary body, usually of a religious denomination; and direct-grant schools which are completely independent of local education authorities but receive grant-in-aid from the Department of Education and Science.

Those schools which receive no grants from public funds are known as independent schools. They are, however, open to inspection. The largest and the most important of the independent schools are the public schools. Fees generally range between £250 and £650 a year. There are about 300 public schools, about half of which are for girls.

Children may enter nursery schools from the age of two, or nursery classes attached to infant schools from the age of three. Primary schools cater for pupils between the ages of 5 and 11. About half of the primary schools take the complete range from 5 to 11. About a quarter take infants only up to about 7 years; most of the rest take juniors only, 7 to 11 years.

Until the early 1960's the great majority of secondary schools maintained by Local Education Authorities were of three types, generally known as 'grammar', 'modern' and 'technical' schools. These three types of schools were organised on a selective basis, entry to the different types generally depending on the results of tests taken at the age of about 11 (and known as the 'Eleven Plus'). This system was also known as 'separatist' system as each type of school provided for a different type of education, i.e. grammar schools providing an academic education orientated towards university entrance; secondary modern giving a general education with a practical bias; and secondary technical schools offering a general education related to industry, commerce and agriculture. There were a number of other schools outside these three categories. These were bilateral or multilateral schools, providing

two or three types of secondary education.

In recent years there has been a significant breakdown of the 'separatist' system in its most rigid form. As a matter of national policy, all secondary education is being re-organised on a comprehensive basis. Comprehensive schools take pupils with reference to ability and provide a wide range of secondary education for all or most of the children of a district. Comprehensive schools can be organised in a number of ways: orthodox comprehensive schools with an age range 11 to 18; 'two-tier' systems with all pupils transferring at 11 to junior comprehensive schools, and at 13 to 14 to senior comprehensive schools; and comprehensive schools with an age range of 11 to 16 combined with six-form colleges for pupils over 16.

The school day in all schools must begin with collective worship for all pupils, except those who have been withdrawn from such worship by their parents.

Speaking generally, corporal punishment is no longer part of the classroom routine in England and Wales as it was thirty years ago, and there is a strong feeling that it plays no part in the modern concept of education.

It is usual for boys and girls to be taught together in primary schools but about half the secondary schools are for boys or girls only. Local education authorities have a duty to provide milk and meals for pupils at maintained schools. Medical examinations and dental inspections are provided free by the local education authorities through the School Health Service for children attending publicly maintained schools. There are ten categories of handicapped pupils for whom local education authorities must provide special educational treatment.

There is no national school leaving examination in England and Wales. However, there are two main examinations, the General Certificate of Education (G.C.E.) and the Certificate of Secondary Education (C.S.E.) which may be taken by secondary school pupils and others (candidates not attending school). The General Certificate of Education examination is not set or run by the Department of Education and Science but by eight independent boards in England and Wales.

The G.C.E. examinations are conducted at two levels, Ordinary ('O') and Advanced ('A'). The O-level papers are usually taken at the end of a five-year course in a secondary school. Most of the candidates for the 'O'-level are about 16 years of age, although it could be taken earlier at the discretion of the headmaster.

'A'-level papers are usually taken after a further two years' study in the sixth form. A candidate may take as many, or as few subjects as he likes.

The Certificate of Secondary Education is the other examination which was introduced for the first time in 1965. It is designed for those children who are around the average in terms of ability for their age group. The examination is on a single subject basis and can be taken by pupils completing five years of secondary education. There is no pass or fail verdict. Pupils are awarded one of five grades or are upgraded in each subject they take.

All teachers in publicly provided schools are paid the same according to their qualifications and responsibility, whether working in an infant school or in the upper classes of a grammar school. Higher salaries, of course, are paid in institutions of higher learning, but normally same rates are paid throughout the country for the same type of institution.

The National Union of Teachers (N.U.T.) founded in the year 1870, is at present the largest teachers' organisation not only in U.K. but also in Europe. Fundamentally it stands for the unity of all teachers and for the establishment of an integrated system of education. The Union works for the establishment of a highly qualified, publicly recognised profession with emoluments and other conditions of service commensurate with the importance of the profession to the nation. Three years' courses of education and training for intending teachers are provided in colleges of education (formerly known as training colleges).

'Further education' is a broad term covering all education beyond the secondary stage. It may be full-time or part-time, vocational or non-vocational. It includes higher education and adult education. The system of higher education includes universities, colleges of education and advanced courses in the further education system.

Compared with 17 universities in 1945, there are at present 44 universities in Britain. The government is responsible for providing about 80 per cent of universities' income. Nevertheless it does not control the work of universities. The University Grants Committee whose members are drawn from the academic and business worlds, advises the Secretary of State on university matters. The University of Oxford and Cambridge date from the twelfth and thirteenth centuries. All the other universities came into existence in the nineteenth or twentieth centuries. The government started an 'Open University' in January 1971. It is an

autonomous university which will provide degree and other courses, using a combination of television and correspondence courses together with a network of viewing and listening centres. No formal academic qualifications are required to register for these courses, but the standards of its degrees will be the same as those of other universities.

Research into the theory and practice of education and the organisation of educational services is supported financially by the Department of Education and Science, the Local Education Authorities, philanthropic organisations, universities and teachers' associations.

The Scottish and Northern Ireland educational systems both have long histories independent of that of education in England, but the same general policy is now being implemented throughout Britain, with some national variations.

Scotland

The Education Act (Scotland) 1962 governs public education in Scotland. All aspects of education in Scotland are the responsibility of the Secretary of State for Scotland except that the Secretary of State for Scotland is consulted about Scottish universities but is not made responsible for them.

The department's headquarters are in Edinburgh but a liaison staff is maintained in London, chiefly for contact with Parliament and other government departments. As in England and Wales, the education authorities are responsible for the adequate provision in their areas of all forms of primary, secondary and further education.

Most of the schools supported from public funds are provided by education authorities and are known as public schools (in England this term is used for a type of independent school). There are also a few grant-aided secondary schools comparable to the English direct grant schools.

Scottish secondary schools fall mainly into one of three categories or are a combination of all three: (1) junior secondary schools for pupils likely to leave school at the statutory leaving age *i.e.*, 15 rising to 16 in 1972-73; (2) schools which in addition to junior secondary courses, provide courses leading to the ordinary grade of the Scottish Certificate of Education; and (3) senior secondary schools which provide certificate courses of four, five and six years. Secondary education in Scotland is also being reorganised on comprehensive lines.

Scotland has a long tradition of university education and has often served as a model for

higher education in the English speaking world. The Scottish universities of St. Andrews, Glasgow, Aberdeen and Edinburgh date from the fifteenth and sixteenth centuries. Other universities are Dundee, Heriot-Watt (Edinburgh), Stirling and Strathclyde.

Northern Ireland

The present educational system of Northern Ireland is based on the Education Act (Northern Ireland 1947) which derives largely from the Education Act of 1944 (England and Wales).

The system is broadly comparable to that in England and Wales. County schools, managed by local education authorities and voluntary schools, under voluntary management are both grant-aided by the government.

There are three public examinations. The junior certificate examination is taken at about the age of 15, normally after a three-year secondary school course and is open to pupils from grammar, secondary (intermediate) or technical (intermediate) schools. This is a 'group' examination, the certificate being awarded only when a candidate has passed in a minimum number of subjects. The Junior Technical Certificate examination may be taken by pupils of the same age, normally as a 'group' examination for those attending technical (intermediate) schools, but with 'subject' certificates for pupils attending other types of secondary school. The Technical Certificate examination may be taken later. The Northern Ireland General Certificate of Education examination was introduced in 1963 and the examination is the equivalent in standard with examinations at ordinary and advanced levels for the General Certificate of Education in England and Wales. Candidates who have passed examinations in a specified group of subjects are eligible for the award of Northern Ireland Senior Certificate.

There are two universities in Northern Ireland and they are: Queen's University, Belfast and the New University of Ulster in Coleraine opened in 1918. Government grants are made by the Ministry of Education which usually first seeks the advice of the University Grants Committee. Teacher training takes place in the university departments of education and six training colleges.

Pop. (1968 est.) 55,283,000. *Edu.* (1968-69): School education—over 9.4 million pupils at about 38,100 schools; University education—over 212,000 full-time students and 30,000 full-time teachers in 44 universities. Total public expenditure on education (1968-69) £2,237 million; 15% of all public expenditure.

UNITED STATES OF AMERICA

Among the modern and fully developed nations, the United States is the supreme example of a decentralized system of school education. Education is not mentioned in the Federal Constitution, but it is clearly stated that all powers, not delegated to the Federal Government and not denied to the States, are reserved to the States. As such each State is sovereign in regard to education. It determines the period of compulsory schooling, makes its own school laws, sets standards for teacher training and recruitment, frames its own educational policies and decides how much to spend on education. There is no Federal Ministry of Education. The United States Office of Education under the United States Department of Health, Education and Welfare is the nearest counterpart to a Ministry of Education. It has, however, no directive power whatsoever as far as the general school systems of the country are concerned.

The Office of Education is responsible for the collection, interpretation and dissemination of educational information. It also provides leadership and encouragement, both intellectual and financial, in particular areas without interfering with the basic responsibilities of the States.

Though the responsibility for schools is vested in the States, they in turn delegate most of it to the local school districts. Thus, the basic unit of educational control devolves on the local school district, headed by a board of education which is usually elected by the people of the district. It is responsible for setting the local policies, for preparing the local budget, hiring teachers, providing buildings and equipment, and generally supervising the schools—all within standards set by the State. Most boards employ, as their executive officer, a paid Superintendent of Schools. Every school district, nay every individual school within the same district, is free to shape its own programme according to its needs, resources and facilities available. The courses of study, the testing and evaluation procedures, the method of taking attendance, the daily schedule, the method of grouping students, and other facilities, are all different in different schools.

A noteworthy development in the supervision of education in the United States has been the growth of parent-teacher associations which work with the school officials in determining educational goals and in providing recreational facilities for the children. Through these associations the parents confer regularly with the teachers on the progress of their children. An American school is

metaphorically 'all windows' or 'all doors'. It is an integral part of the community.

School attendance is compulsory for nine years between the ages of 7 and 16 in two-thirds of the States. Other States require compulsory schooling up to the age of 17 or 18. Six States begin compulsory schooling at 6, and six others set it at 8. The first 12 years of elementary-secondary education is provided free to all American children of all the States. Parents, however, may send their children to private or church-connected schools; but in that case they have to meet the full cost of such education, in addition to paying their usual share of tax for support of public schools. Public fund is not used to support private or church-connected schools. About one child in seven attends a private school.

The 12 years of free schooling are divided into different patterns in different communities. Sometimes there are eight years of elementary and four years of secondary school. More common are six years of elementary schools, followed by two of junior high, and four of senior high, or three years of junior and three of senior high. Elementary schools enrol virtually the entire elementary school-age population from 6 to 13.

Modern public elementary school is generally a one or two storey brick building housing children from six years of age to twelve, thirteen or fourteen, depending upon the local school organisation. Speaking generally, class rooms are large and airy; furniture is movable; natural and artificial lights are healthfully combined; walls are painted a soft bright colour; and bulletin boards are decorated with the colourful art work of pupils. In each room pupils find interesting books to read; science materials with which to work; easels with paper, paints and brushes; and living things, such as flowers and animal pets where the climate permits. Classes may take place out of doors so that the children benefit from sunshine and fresh air and from planned physical activities. Attention is paid to the development of social relations. In the elementary schools, boys and girls work and play together, with many opportunities to develop wholesome social relations. They learn that the school is a part of the community—the town, the State, the nation, the world. Every effort is made to make learning real and purposeful to children, in terms of their own interests and needs and the needs of the community. An increasing number of elementary schools are experimenting with the teaching of some foreign language.

Among the 14 to 17 years old, about 91% are in school. Many kinds of needs of the students are served by U.S. high schools. They have come to be known as comprehensive high schools, because they offer many different subjects under one roof. They also offer in one spot secondary education for almost all the high-school-age children of one town or neighbourhood. Although the comprehensive high school is most common, there are also some specialized high schools, chiefly in the large eastern cities.

Jane B. Conant, former President of Harvard University wrote: "The comprehensive high school is characteristic of our society.... It offers in one spot secondary education for almost all the high school-age children of one town or neighbourhood. It educates the boy who will be an atomic scientist and the girl who will marry at 18; the prospective captain of a ship and future captain of industry. It educates the bright and the not-so-bright. It provides good and appropriate education, both academic and vocational, for all young people within a democratic environment which the American people believe serves the principles they cherish."

The daily routine of a secondary school is divided into seven periods of fifty minutes each. Every subject is taught by specialised teachers and students are required to move from room to room in different periods. Most of the high school buildings of the U.S.A. are well built and well equipped. The school building includes a dining room, library hall, a gymnasium, an auditorium in addition to a number of class and subject rooms. Some of the bigger schools have their indoor swimming pool and playing fields. More and more teachers are using records, movies, filmstrips and other devices to present their material more graphically.

In the United States, public examination does not play a significant role in evaluating pupils' progress. Every high school has an efficient testing service, and detailed and careful records of students' progress are maintained and grades given accordingly. Students are graded not only in subjects, but also in their attitudes.

The words "college" and "university" are often used interchangeably in the United States. A man studying at Harvard University speaks of himself as "going to college". Strictly speaking, a college is either an independent school offering a four-year programme of liberal arts beyond the secondary level, or one of the many schools which make up a university.

Some colleges are for men only or women only, but most are co-educational. Each is governed by its own Board of Trustees. The Federal Government exerts no centralized control over the system of higher education, and the States and cities grant even their tax-supported universities a large measure of autonomy. Rapidly growing in number are the junior colleges and technical institutes which offer two-year programmes in liberal arts and specialized job training.

Financial support for education comes primarily from three levels of government—the Federal Government, State Governments, and local school administrative units within each of the States. Each makes a contribution roughly as follows: 4 percent from Federal funds, 40 percent from State funds, and 56 percent from local funds.

Pop. (1967 est.) 199,118,000. Edu. (1967): Kindergarten to grade 8, pupils 37,040,000 (including 31.7 million in public schools), teachers 1,217,000 (including over one million in public schools); Secondary schools from grade 8 to grade 12, pupils 13,747,000 (including 12.3 million in public schools), teachers 902,000 (including 815,000 in public schools); Higher education, students 6.5 million, teachers 495,000. Edu. expenditure (1967-68) about \$ 54 billion; 6.9% of gross national product.

UPPER VOLTA

The Republic of Upper Volta became independent in 1960. The Ministry of Education is responsible for education at all levels. It administers all State institutions; it subsidises and supervises all private schools. The regional authorities help the Ministry of Education by constructing and maintaining school buildings. The educational system is based on the French pattern, with necessary adjustments related to primary education. The primary school lasts 6 years leading to the primary school certificate. Admission to secondary level depends on a selective examination. General secondary education may cover either a full secondary course of 7 years, or a short course of 4 years. The full secondary course is provided in *lycees* and *colleges*, and comprises two cycles: the first of 4 years leading to the lower secondary certificate, and the second of 3 years leading to the *baccalaureat*. The short course is provided in *cours complementaires* leading only to the lower secondary certificate. Technical and vocational education is provided in specialized schools of secondary level offering courses which vary from

one to five years. There are 4-year teacher training courses at the lower secondary level for teachers of primary schools. Since Upper Volta has no institutions for higher education, students go abroad, usually to France, or to other African countries for pursuing higher studies.

Pop. (1967 est.) 5,054,000. Edu. (1967-68): Primary, schools 587, pupils 129,364; Country schools 542, pupils 31,846; Secondary, schools 48, pupils 10,145; Teacher training 8, pupils 1,447. Public expenditure on education (1965) 1,514 million CFA francs.

URUGUAY

The constitutional bases of education is to be found in the reformed constitution of 1952 which includes the following provision: the freedom of education is guaranteed; every parent has the right to select the teachers or institutions for the education of his children; primary education shall be compulsory. Education at all levels is secular and completely free in State institutions. The Ministry of Public Instruction and Social Welfare has overall supervision of the country's education, but its responsibility to a large measure is decentralized through several autonomous national councils which govern different aspects of education in public institutions. For purposes of inspection, the country is divided into three regions, each headed by a regional inspector.

Kindergartens are established mostly in the capital city of Montevideo for children, from 3 to 6 years of age. Primary and secondary education is free. The normal duration of compulsory schooling is 6 years for children between the ages of 8 and 14 years. This corresponds to the period of primary education offering a 6-year course. In some of the rural areas 4-year one-teacher schools are still run. At the secondary level there may be general, vocational, technical, or teacher training type of schools. General secondary education is given in the 6-year *liceos nacionales* which consist of two cycles: the first, known as the basic cycle, lasts 4 years; the second intended as a preparation for higher education lasts 2 years. The *bachillerato* certificate is awarded after the successful completion of the full 6-year course. The teacher training institutes provide 4 years of general studies (corresponding to the first cycle of general secondary education) followed by 3 years of professional instruction. Higher education is provided in the University of the Republic at Montevideo, College of Arts and Trades and in several other institutes of specialized studies. Degrees are granted after

3 to 6 years of study, depending on the nature of the courses.

Pop. (1967 est.) 2,783,000. *Edu.* (1964): Primary, schools 2,362, pupils 270,985; Secondary, schools 205, pupils 71,175; Technical,

schools 43, pupils 15,000; College of Arts and Trades, students about 26,900; University students about 16,200. Budget of the Ministry of Education (1965) 1,947 million pesos.

V

VENEZUELA

The constitution (1961) includes the following provision: every citizen has the right to education; education is compulsory: education provided by public institutions shall be given free except that the law may make exceptions for higher and special education where persons of means are concerned; the State shall stimulate and protect private education according to the principles contained in the constitution and the laws. Though Venezuela is a federation of 20 States, the educational system is highly centralized. The Ministry of Education is responsible for schools and institutions at all levels, and discharges all important functions of policy making, administration and inspection.

Kindergartens are available in larger urban centres for children 4 to 7 years old. The 6-year primary education is compulsory for children between the ages of 7 and 14 and is free in all public schools. The programme of the first 4 years is basically the same for rural and urban schools. The programme of the last 2 years includes agricultural orientation for rural schools and pre-vocational industrial training in urban schools. After completing the primary school, pupils may enter the five-year general secondary school (*liceo*), or one of the several terminal vocational courses varying in length from 3 to 8 years. The general secondary education is provided in the *liceo*, and is divided into two cycles: the first cycle of 3 years provides general studies; the second cycle of 2 years offers specialized courses in the sciences or the humanities. The *bachillerato* certificate is awarded at the end of the secondary course, and is considered the basic qualification for entrance to the universities. Both urban and rural normal schools have 4-year courses for those intending teachers of primary schools. Secondary school teachers require post-secondary training in one of the two Pedagogical Institutes. There are 7 univer-

sities, the most important being the Central University at Caracas. The courses vary from 4 to 6 years depending on the field of specialization.

Pop. (1968 est.) 9,500,000. *Edu.* (1967-68) Primary, pupils 1,550,633, teachers 45,700; Secondary, pupils 230,371, teachers 10,624; Technical, pupils 108,466, teachers 5,916; Teacher training, pupils 11,147, teachers 1,314; Higher students, 58,831, teachers 6,445. Budget of the Ministry of Education (1968) 1,234 million bolivars; 13.7% of general state expenditure; 3.1% of gross national product.

VIETNAM, REPUBLIC OF

Vietnam is a republic which became independent in 1945. The present constitution was adopted in 1967. The Ministry of Culture, Education and Youth is responsible for all types of education at all levels. The Ministry is divided into five departments: Culture; Youth; Secondary, Elementary and Mass Education; Higher Education and Research; Technical and Vocational Education. Compulsory schooling covers five years for children between the ages of 6 and 11 years. Public education is free at both primary and secondary levels. The free supply of primary school textbooks has been increasing through the years and high quality secondary school textbooks are sold to the pupils at a moderate price.

Pre-school education relies on private enterprise, though the Ministry has set up a number of such schools to serve as demonstration and practice classes for teachers in training. Primary education lasts five years. The Ministry is making a systematic examination of primary education to carry out appropriate reforms and to extend it into the remotest rural areas. The seven-year of secondary education comprises two stages: the first stage of four years with a common curriculum for all pupils; the second stage of three years

divided into four streams of modern languages, classical languages, mathematics and science. Technical and vocational education at the secondary level lasts five years following on from two years general secondary education. The *baccalaureat* is awarded after the successful completion of the full 7-year course of secondary education. Teacher training covers two years after the *baccalaureat*. Higher education is provided in the three universities in Saigon, Hue and Dalat, in the National Institute of Administration, and in the National College

of Agriculture, Forestry and Animal Husbandry. There are also a number of technical and engineering schools.

Pop. (1967 est.) 16,973,000. *Edu.* (1967-68) : Primary, pupils 1,968,994, teachers 32,422 ; Secondary, pupils 470,925, teachers 11,528 ; Technical and vocational, pupils 8,527, teachers 529 ; Teacher training, pupils 4,536, teachers 191 ; Higher, students 31,272, teachers 789. Budget of the Ministry of Culture, Education and Youth (1968) 5,771.8 million piastres ; 6.6% of the total national budget.

Y

YUGOSLAVIA

The constitution (1946) laid down that schools and other educational institutions shall be open to all sectors of the population without any discrimination, and the opening of private schools must have legal sanction. The law on Compulsory Education (1955) requires all children between 7 and 15 years of age to attend primary school regularly. Yugoslavia consists of six federated people's republics and two autonomous regions containing inhabitants of five nationalities : Serb, Croat, Slovenian, Macedonian and Montenegrin. The medium of instruction in the schools is the children's mother tongue, and in the universities, the language of the people of the respective republics : Slovenian in Slovenia, Macedonian in Macedonia, and Serbo-Croat in other four republics. The responsibility for education is decentralized, and is distributed at three levels—federal, republican and municipal. At the federal level is the Federal Council for Education and Culture, which is subordinate to the Federal Assembly ; at the republican level are the councils of education and culture, and the secretariats, which are subordinate to assemblies of the republics ; at the municipal level are the councils of education and culture and the secretariats, which are subordinate to the city and municipal assemblies. Most of administrative duties at the federal level have now come down to the level of the republics which introduce laws on education for their own regions. In view of the specific character of the country's socio-political organization, the economic sector and the whole community exercise an influence on educational policy. Autonomous 'school communities' (school associations) have been set up

in every republic, to develop the social aspect of education, achieve better co-ordination between school activities and the needs of the community and make a wise distribution of the funds allocated to education by the social community. The major part of the school's income is provided by the social communities.

The pre-primary schools cater for children between the ages of 3 and 7 years. Primary education for children commences at the age of 7 and lasts for 8 years. These 8-year primary schools form the foundation of the entire school system. It is uniform throughout the country as the Federal Council for Education lays down the bases for the curriculum. These bases help the educational authorities of the republics in planning the curricula of the schools under their jurisdiction. The Municipal Councils of Education are, however, entitled, to adapt the curricula to geographical and economic conditions and to the needs of the areas in which the schools are located. Efforts are being made particularly in the rural areas, to enable all pupils to complete their 8-year primary education successfully and to prevent early school leaving. These efforts will help to raise in future the school leaving age to 17, instead of 15 as at present. It is also planned to organize additional vocational courses in classes 7 and 8 or after completion of the primary school, for those who are unable to continue their secondary education. After completing the primary school pupils may enter a *gimnazija* (gymnasium), the general secondary school with a four-year course. Pupils may choose between two courses : social studies and languages or natural sciences and mathematics. Efforts are being made to co-ordinate the syllabuses for the

first two years of study to facilitate transfers from one school to another and to direct the syllabuses for the last two years towards the chosen specialization. The technical and vocational schools of 4-year course are also placed at the same level as the *gimnazija* (gymnasium). Pupils completing the vocational schools may enter the higher vocational schools, schools of higher education, art academies or university faculties. Teacher training schools at the secondary level offer a 5-year course for primary school teachers. Teachers for the *gimnazija* (gymnasium) are trained at universities. Higher education is provided in the six universities, higher professional schools within the universities and in the independent specialized professional institutes.

The Federal Institute for Educational Research and the Institutes for the Advancement of Education in each of the 6 republics and 2 autonomous regions, are devoted to research and improvement of educational methods. They supervise teaching methods,

lend professional assistance and assist educational institutions in promoting their educational work. Besides this, the "school communities" and other educational institutions are engaged in appraising the quality of work of individual schools, in co-operation with various social groups and with the assistance of pedagogical services. Thus, inspection has lost the character of State control, and has become a part of the schools' effort to achieve better work and results.

Pop. (1968 est.) 20,210,000. *Edu.* (1967-68): Primary, pupils 2,936,486, teachers 107,752; Secondary (*gimnazija*), pupils 189,067, teachers 9,318; Secondary (technical and vocational), pupils 201,392, teachers 9,114; Secondary (teacher training), pupils 26,469, teachers 1,371; Secondary (schools for skilled workers), pupils 226,831, teachers 5,377; Art schools, pupils 5,164, teachers 1,114; Higher education, students 210,810, teachers 15,950. Edu. expenditure (1967) 4,642.5 million new dinars; 4.9% of national income.

Z

ZAMBIA

Zambia became independent in 1964, and adopted its own constitution from the same year. The Ministry of Education is responsible for all schools, technical, further and higher education. The Ministry of Local Government and Housing controls the pre-primary education. The Ministry of Education provides a variety of vocational training courses in teacher training schools, trade schools, and technical colleges, though other Ministries also offer special vocational training courses. The new Education Act was adopted in 1966; it ended the distinction between African and non-African education, and provided a comprehensive administrative structure for the educational system for all races. Education (except university education) within the nine regions into which the country is divided is the responsibility of the regional chief education officers, responsible to the Permanent Secretary to the Ministry of Education. A three-tier system of councils of education (local, regional and national) establishes advisory bodies to the Ministry. This is a significant advance towards the creation of local education authorities.

There is no compulsory education. Education is free in all government schools, except for a small number of primary schools, and in classes 4 and 5 of a handful of secondary schools, where nominal fees are charged. In the earlier system of education there was an 8-year primary school followed by a 6-year secondary school. In 1965, the primary school course was reduced from 8 to 7 years. Agencies other than Roman Catholic have handed over a large number of their primary schools to the government. The whole primary school syllabus is being "Zambianized", so as to adapt it to the needs of the Zambian pupils; but English as the medium of instruction is gradually being introduced in the primary schools from the first class in place of a Zambian language. (Earlier English was taught as a subject until it became the medium of instruction in the fifth or sixth class of the primary school.) From 1967, the secondary school course was also reduced from 6 to 5 years. The 5-year secondary course is divided into junior secondary course of 2 years and the senior secondary course of 3 years and leads to the Cambridge Overseas School Certificate which is a pre-requisite for entering the university. In the trade schools one-year course is

replaced by a 3-year course, the second year of which is spent in 'on the job training'. The University of Zambia, which was opened at Lusaka in 1966, is the crown of the national education system. It includes schools of the humanities and social sciences, natural sciences, education, administration, agricultural sciences, engineering, law, and medicine. The teacher training course consists of two post-junior secondary years for primary teachers,

and of two post-senior secondary years for secondary teachers.

Pop. (1967 est.) 4.1 million. *Edu.* (1966-67): Primary, pupils 533,395, teachers 10,673; Secondary, pupils 34,206, teachers 1,634; Technical and vocational, pupils 1,350, teachers 110; Teacher training, pupils 1,904, teachers 175; University of Zambia, students 536, teachers 107. Budget for education (1966-67) £ 20,866,129; 15% of general state expenditure.

Index

<i>Country</i>	<i>Page</i>	<i>Country</i>	<i>Page</i>
Afghanistan	1	Ethiopia	20
Albania	1	Finland	21
Algeria	2	France	22
Andorra	2	Gabon	23
Argentina	2	Gambia	24
Australia	3	German Democratic Republic	24
Austria	4	Germany, Federal Republic of	24
Bahrain	5	Ghana	26
Belgium	5	Greece	26
Bolivia	6	Guatemala	27
Botswana	6	Guinea	27
Brazil	7	Guyana	28
Bulgaria	7	Haiti	28
Burma	8	Honduras	28
Burundi	9	Hungary	29
Byelorussian S.S.R.	9	Iceland	30
Cambodia	10	India	30—43
Cameroon	10	Constitutional Bases	30—32
Canada	11	The Five Year Plans	33
Central African Republic	12	Education Commission	34
Ceylon	12	<i>States</i>	35—41
Chad	13	Andhra Pradesh 1964—66	35
Chile	13	Assam	35
China, People's Republic of	14	Bihar	36
China (Taiwan), Republic of	14	Gujarat	36
Colombia	15	Himachal Pradesh	37
Congo, Democratic Republic of	15	Jammu and Kashmir	37
Congo, Republic of	16	Kerala	37
Costa Rica	16	Madhya Pradesh	37
Cuba	16	Maharashtra	38
Cyprus	17	Mysore	38
Czechoslovakia	17	Nagaland	39
Dahomey	18	Orissa	39
Denmark	18	Punjab	39
Dominican Republic	19	Rajasthan	40
Ecuador	19	Tamil Nadu	40
El Salvador	20	Uttar Pradesh	40

<i>Country</i>	<i>Page</i>	<i>Country</i>	<i>Page</i>
West Bengal	41	Niger	60
<i>Union Territories</i>	41—43	Nigeria	61
Andaman and Nicobar Islands	41	Norway	61
Dadra and Nagar Haveli	41	Pakistan	62
Delhi	41	Panama	63
Goa, Daman and Diu	42	Paraguay	64
Laccadive, Minicoy and Amindive Islands	42	Peru	64
Manipur	42	Philippines	64
NEFA	43	Poland	65
Pondicherry	43	Portugal	66
Tripura	43	Qatar	66
Indonesia	44	Romania	67
Iran	44	Rwanda	68
Iraq	44	San Marino	68
Ireland	45	Saudi Arabia	69
Israel	45	Senegal	69
Italy	46	Sierra Leone	69
Ivory Coast	47	Singapore	70
Jamaica	48	Somalia	70
Japan	48	South Africa, Republic of	70
Jordan	50	Spain	71
Kenya	50	Sudan	72
Korea, Democratic Peoples' Republic of	51	Swaziland	72
Korea, Republic of	51	Sweden	73
Kuwait	51	Switzerland	74
Laos	52	Syrian Arab Republic	74
Lebanon	52	Tanzania, United Republic of	75
Liberia	53	Thailand	75
Libya	53	Togo	76
Luxembourg	53	Trinidad and Tobago	76
Madagascar	54	Tunisia	77
Malawi	54	Turkey	77
Malaysia	55	Uganda	78
Mali	55	Union of Soviet Socialistic Republics	78
Malta	55	United Arab Republic	80
Mauritania	56	United Kingdom	81
Mexico	56	United States of America	84
Mongolian Peoples' Republic	57	Upper Volta	86
Morocco	57	Uruguay	86
Nepal	58	Venezuela	87
Netherlands	58	Vietnam (Republic of)	87
New Zealand	59	Yugoslavia	88
Nicaragua	60	Zambia	89